



## Chapter 5

# Oral care in the future

– The future envisioned by Lion

In a social environment that has changed dramatically, with declining birthrates and a rapidly aging population, what oral health activities should exist in the future? In Chapter 5, the final chapter, we turn our gaze from the past to the future, and introduce Lion's blueprint for oral health promotion over the next century.



健康日本21

# Expanding into a nationwide movement

## Promoting oral health as a national project

Lion's continuous work on oral health since 1913 has led to an era in which oral health is a government-supported project. In 1989, the Ministry of Health and Welfare proposed the 8020 Campaign, aimed at having 80-year-olds retain at least 20 of their teeth. Also, Healthy Japan 21, a movement to promote the health of citizens in the 21st century, started in the year 2000. The underlying Health Promotion Law framework specifies maintenance of healthy teeth among its major goals. What's more, the Ministry of Health, Labour and Welfare aimed to further promote the 8020 Campaign with the phrase "Chewing 30" to encourage people to chew their food at least 30 times. To increase public awareness of the importance of healthier living, the Dental Health Law, which the Japan Dental Association has hoped for years would be enacted, finally was enacted in 2011. The purpose of this law is "to comprehensively promote measures to maintain oral health by preventing dental diseases, etc., because oral health plays an important role in physical and mental health." This basic law is significant, as it clarifies the national government's responsibility for the dental health of Japan's people.

# Improving quality of life with "Healthy mouth - Beautiful mouth"

## Good health begins with a healthy mouth

In 2010, as the national government and public administrations were intensifying their oral health activities, The Lion Foundation for Dental Health received certification as a Public Interest Incorporated Foundation and has eagerly assumed its new social responsibility to contribute even more to dental health. In particular, the aging of Japanese society is an urgent issue, but even now only about 40% of 80-year-olds still have 20 or more of their teeth. Improving this situation will require not only conventional cavity prevention, but also initiatives to maintain a healthy mouth throughout one's lifetime. As the relationship between periodontal disease and overall health has become clear, dental health has also become an essential issue in efforts to extend healthy life expectancy.

Therefore, Lion introduced the concepts "A healthy mouth beautifies the body and mind" and "Healthy mouth - Beautiful mouth", and also developed campaigns such as "Eat, Talk, Smile" to raise awareness of the essential role of oral care in everyday life. By giving sound guidance on proper maintenance of oral health, oral beauty and communication, we strive to promote better physical and mental health, in order to extend life expectancy and improve quality of life. By calibrating steps to adapt to each stage of life, as described on page 56, these activities address the challenges of achieving health and prosperity as society ages.

A healthy mouth beautifies the body and mind

Extending healthy life expectancy



Improving QOL (quality of life)

Promoting healthy bodies

Promoting healthy minds



Eat



Talk & Laugh

Healthy mouth — Beautiful mouth

Oral Health

Oral Beauty

Communication



Teaching at a diet education event in Sumida-ku, Tokyo. Instilling healthy habits during childhood leads to better lifelong health.

# Developing important health habits during childhood

## Oral health activities for children

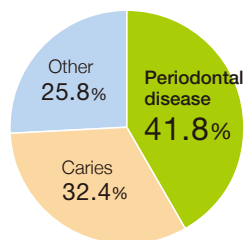
In our activities for children, in addition to the Children's Mass Toothbrushing Tournament, we put our energies into developing healthy habits in everyday life. Various activities for schoolchildren have led to a reduction in caries, so that in the year 2014 the average 12-year-old schoolchild has had an average of just one cavity. However, in spite of this, perhaps because toothbrushing habits have not been properly established, there is a growing trend toward cavities and periodontal disease during and after adolescence.

Because the health habits formed in childhood significantly affect maintenance and improvement of subsequent health, we need to further increase awareness to establish good health habits. Specifically, we are aggressively expanding activities such as instruction on toothbrushing at local community events and extracurricular activities aimed at kindergartens, elementary schoolchildren and mothers.

Since 2012, we have also conducted surveys in Ishigaki, Okinawa Prefecture, in cooperation with the municipal board of education, school nurses and school dentists, to investigate toothbrushing habits of elementary and junior high school students, and gauge parental awareness. The aim, besides using the results to establish good health habits, is to "develop a healthy community, beginning with children's oral health" across the entire region.

Few people notice periodontal disease because it causes no pain, but it is a serious illness that leads to loss of teeth. From the 8020 Promotion Foundation's "Investigation Into the Removal of Permanent Teeth."

Causes of lost teeth



# Campaign to strengthen awareness of periodontal disease

## Oral health initiatives for adults

The biggest topic related to adults is combatting periodontal disease. Proper care at this stage is important, both in regard to the goals of the 8020 Campaign, and in its connection to future health.

Periodontal disease occurs when periodontal bacteria, etc. multiply in spaces between the teeth and gums (periodontal pockets), or in accumulated plaque. It is a terrible illness and the number one cause of tooth loss. In addition to daily care with a toothbrush and inter-dental brush, improving lifestyle habits is a key to preventing periodontal disease. Smoking, accumulated fatigue, lack of sleep, and stress can reduce the body's resistance and are major factors that increase the risk of periodontal disease. Smoking in particular increases the likelihood that periodontal disease will progress, because it creates an environment inside the mouth that is conducive to the growth of periodontal bacteria, and nicotine suppresses the capillaries' ability to protect the body. In many cases, the disease becomes quite severe before it is even noticed. Furthermore, reduced immunity due to stress can exacerbate periodontal disease and make healing difficult. In oral health initiatives for adults, it is essential that educational activities such as these be carried out thoroughly.



The Lion Foundation for Dental Health's Periodontal Disease Risk Examination Program provided examinations and instruction to 980 participants on November 24-25, 2012.

# Periodontal disease can lead to bodily disease

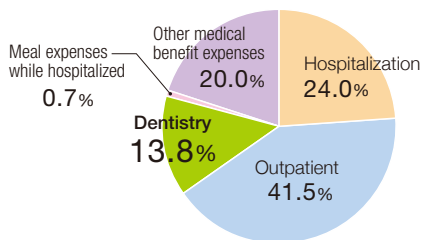
## The mouth is the entranceway for infection

Recent research has revealed that periodontal disease has an adverse effect on a variety of systemic diseases, such as diabetes and arteriosclerosis. The mouth, besides being the entranceway for food, is also the port of entry for things like bacteria and viruses. Especially in the case of periodontal disease patients, the mucous membranes that normally prevent bacterial invasion have become sore inside the periodontal pockets, which allows bacteria to easily enter capillaries and spread throughout the body. Periodontal disease bacteria entering the body have been found to worsen diabetes, as well as increase the risk of arteriosclerotic diseases such as cerebral infarction and myocardial infarction.

At Lion, we are cooperating with health care workers to further clarify the connection between periodontal disease and systemic disease. We will continue to propose effective measures, while developing activities to raise the general public's awareness of periodontal disease. We put great energy into implementing our own independently developed programs such as The Periodontal Disease Risk Testing Program and The Periodontal Disease Prevention Program. Other activities include surveys of lifestyle habits, occult blood measurements in gums, and measuring levels of mouth cleaning. From these we determine a person's risk of periodontal disease in the future, and urge the subject to beware of any risks.

A breakdown of 2007 medical benefit expenses (cash benefits, excluding extra benefits) which totaled 1,405.4 billion yen.

A breakdown of the Health Insurance Society's insurance benefit costs



## The medical costs of treating periodontal disease

The worse a person's periodontal disease, the higher the medical costs

The rate of periodontal disease infection is extremely high, and has been cited as a cause of rising health care costs. According to a survey by the Ministry of Health, Labor and Welfare, periodontal disease is increasing rapidly in people over 40, and it was revealed that about half of Japanese people from 40-64 years old have periodontal disease pockets (periodontitis). This is a cause of ballooning dental expenses, as dental care costs comprise about 14% of the Health Insurance Society's medical benefit costs. Excluding hospital treatment, dental care expenses now make up around one-fifth of overall benefit costs. In addition, because periodontal disease can also lead to systemic disease, the more people who have periodontal disease, the higher total medical costs tend to rise. According to some published survey results, people with periodontal disease have 21% higher medical costs on average than those without periodontal disease.

To protect the health of people like these who are in the prime of life, Lion proposes individualized programs tailored to each company to raise employee awareness of periodontal disease prevention. This aspect of our ongoing industrial dental health activities for workplaces is aimed at optimizing the Health Insurance Societies' medical expenses.

Significant results, such as savings of around 28,000 yen per person over six years in dental care costs, have been achieved at companies participating in Lion's initiatives.





Keeping the mouth clean extends healthy life expectancy for elderly people.

# Aiming to extend life expectancy and health

## Oral health initiatives for the elderly

With our oral health initiatives for the elderly, we continue to help people lead longer, healthier lives. Japanese men's and women's life expectancies are among the highest in the world, although the healthy life expectancy of an independent (not bed-ridden) person remains at 71.19 years for men and 74.21 years for women (2014, Ministry of Health, Labor and Welfare). At The Lion Foundation for Dental Health we aim to extend healthy life expectancy by maintaining oral health, and help people remain independent throughout more of their lives.

For example, at special nursing homes for the elderly in Kyotango, Kyoto Prefecture and Neyagawa, Osaka Prefecture, we are taking measures to prevent aspiration pneumonia through oral care. When elderly people swallow food, some of it can inadvertently enter the airways, and if the mouth and dentures are not kept clean, bacteria can enter the lungs, possibly leading to pneumonia. Therefore, by providing oral hygiene instruction to the elderly and to the facilities' staff, our activities prevent pneumonia. By deploying useful care methods nationwide, we are helping to extend healthy life expectancy.

Using various tools to maintain and improve oral function



## Preventing dementia by improving oral function

The Lion Foundation for Dental Health also conducts research studies to develop concrete approaches to maintain and improve oral function, and to contribute to the health of the elderly.

We carried out an investigative survey from 2012 to 2013 in Miyakojima, Okinawa Prefecture on preventing deterioration of cognitive function by improving elderly people's oral function. This study was jointly conducted by The Lion Foundation for Dental Health and the Tokyo Metropolitan Institute of Gerontology. With the cooperation of local dental hygienists and public health nurses, we carried out a five-month oral function improvement program involving 162 people aged 65 or older. Elderly people doing various exercises to improve oral function increased their biting strength and swallowing strength, which also improved their functions of execution and alertness. This, in turn, slowed the decline of cognitive function. These results were announced at an information meeting at Miyakojima Hirara Health Center at which the importance of oral care was demonstrated to dental hygienists and officials of senior care facilities.

# Maintaining oral health through “Healthy mouth — Beautiful mouth” exercises

## To enjoy delicious food forever

The Lion Foundation for Dental Health developed "Healthy mouth - Beautiful mouth" exercises that make it easy for elderly people to enhance their oral function and overall health. Three exercises that vitalize the area around the mouth, biting strength and swallowing strength are combined to train the muscles that support oral function, thereby preventing aspiration and choking accidents.

Exercises to vitalize the area around the mouth strengthen muscles of the lips and cheeks, helping to prevent food spillage while enabling proper pronunciation as well as a wide range of facial expressions that enhance elderly activity and sociability. Exercises to vitalize biting strength make eating safer by enhancing chewing power and increasing saliva flow, which clean the inside of the mouth, prevent caries and periodontal disease, and facilitate swallowing. Biting firmly also activates the brain and helps prevent dementia. Exercises to enhance swallowing strength train the muscles used for swallowing food, which prevents the aspiration of food and saliva into the trachea.

The Lion Foundation for Dental Health holds oral care workshops in cooperation with various municipalities to promote “Healthy mouth - Beautiful mouth” exercises. We develop these activities to help the elderly continue to enjoy delicious food, happy conversation and lives filled with laughter.

A DVD was produced that gives an easy-to-understand introduction to methods and results of "Healthy mouth — Beautiful mouth" exercises. Our activities promote improved vitality of the mouth.



"Healthy mouth — Beautiful mouth" exercises

Lesson 1

## Exercises to vitalize the area around the mouth

- 1 Make "ooh" and "eeh" sounds, exaggerating the changes in mouth shape.



ooh

Pucker your mouth strongly.



eeh

Pull your lips wide.

- 2 Puff your cheeks out big.



Puff out your left cheek.



Puff out your right cheek.



Puff out both cheeks.

The presentation of the  
Clinical Research Award  
from the American Academy  
of Periodontology.



## Clarifying the connection between periodontal disease and metabolic syndrome

### ● Winning double prizes, in Europe and America

With periodontal disease identified as the cause of various diseases, in 2011 The Lion Foundation for Dental Health carried out epidemiological studies to show that periodontal disease worsens metabolic syndrome. Metabolic syndrome can cause various lifestyle diseases, and a global response is required to deal with this affliction because it increases the risk of stroke and myocardial infarction. However, the discovery that measures to prevent periodontal disease also prevent metabolic syndrome was a major breakthrough.

In November 2011, this research earned a Clinical Research Award from the American Academy of Periodontology. It was the first time that the award was won by Japanese.

At Europerio7, held the following year in June 2012, a paper by The Lion Foundation for Dental Health was awarded first prize among papers on periodontal disease that had been published over the previous three years.

As a scientific research institute approved for funding by the Ministry of Education, Culture, Sports, Science and Technology, The Lion Foundation for Dental Health has received high evaluations for its research, and the two awards from the United States and Europe, respectively, attracted worldwide attention.

"Polish Your Health, Increase Your Smiles" is a 200-page pocket edition simply organized with plenty of illustrations.



## Proposals for healthy habits at each stage of life

The "Polish Your Health, Increase Your Smiles" series is published

At Lion, we believe that the secret to happy everyday living is to "examine your health and develop good habits." Therefore, our wide range of activities delivers information for better health in general, not only for the teeth and mouth. In 2015, we published the "Polish Your Health, Increase Your Smiles" series of books about adopting good health habits at each stage of life.

Of these four books, the one entitled "58 Things Baby Wants Mama and Papa To Do" is oriented toward early childhood, and explains child-rearing tips for everything from nutrition to discipline. For schoolchildren there is "74 Habits for developing effective kids that they don't teach in school". For adults there is "The body's danger signals that go surprisingly unnoticed by working-age people — Notice them to instantly turn your life around." For the elderly, "A healthy head and body — Training for a lifetime of health" is packed with information on how to stay healthy and maintain an active life. Each of the books is aimed at helping a particular generation enjoy happy living now and in the future, on the basis of "health, comfort, and environment."



Promotional efforts include Lion Dental Products Co., Ltd.'s *Dent.-File* magazine introducing dental clinics and dental hygienists working in the field of preventive dentistry.

## Another topic: Preventive dentistry

### Aiming to make preventive dentistry a habit

In addition to the aforementioned life stage-specific care, Lion is also working to "make preventive dentistry a habit" in the future. Preventive dentistry provides appropriate care to maintain functions that prevent mouth diseases. Lion advocates concrete measures to establish regular professional care by dentists, etc., and develop daily self-care routines.

Lion also includes other groups vigorously promoting preventive dentistry. Lion Co., Ltd. brand campaigns and advertising promote relevant consumer education. Lion Dental Products, which sells dental supplies and dental treatment equipment, provides dentists and dental hygienists with up-to-date information. We also support preventive dentistry by encouraging more clinics to provide it. Besides urging consumers to get regular checkups and maintenance visits, The Lion Foundation for Dental Health is also intensifying efforts to provide information to dental clinics. Multi-faceted activities by each company are spreading awareness about this field.

The roots of the Tokyo Dental Clinic, a leading preventive dentistry clinic, go back to the establishment in 1921 of the Lion Dental Clinic for Children, Japan's first specialized dental clinic for children.



## Strengthening preventive dental care at the Tokyo Dental Clinic

The Lion Foundation for Dental Health is actively introducing preventive dentistry into its dental practice. The Tokyo Dental Clinic is making a major shift away from the conventional treatment of symptoms involving grinding, pulling, and putting in false teeth, to a prevention and control (maintenance) system aimed at prevention of recurring problems.

Because dental caries do not heal naturally, and restoring gums to their previous state after periodontal disease occurs is almost impossible, it can be said that dental diseases are irreversible. In the U.S.A. and countries in northern Europe, where dentistry is more developed, prevention and control of dental disease (maintenance) are common, with over 80% of people visiting dental clinics for maintenance procedures. Therefore, the Tokyo Dental Clinic has set up a reception system for maintenance, where patients can receive guidance about risk control dentistry consisting of preventative treatments tailored according to each patient's risk of dental and oral diseases. Up to seven different types of tests, including saliva PH, bacteria counts in saliva, etc. are used to accurately determine the patient's risk level, and regular care helps to maintain mouth health.



# Putting dental hygienists in charge of preventive dentistry

## Implementing detailed maintenance with a patient-centered system

At the Tokyo Dental Clinic, dental hygienists play a major role in effectively implementing risk control dentistry. While the dentist has final responsibility for the patient, management of care for patients whose caries treatment is finished, or whose periodontal disease condition has stabilized, shifts to the dental hygienist. Dental hygienists, who have learned high-level techniques of professional care, perform specialized risk examinations and accordingly carry out maintenance work such as scaling, etc. The Tokyo Dental Clinic has also introduced a system that assigns each patient a dental hygienist in charge of that patient's ongoing care, providing a consistent program of prevention and health guidance. The dental hygienist is actively involved in maintaining the health of the patient's teeth and mouth.

The Lion Dental Clinic For Children, predecessor of the Tokyo Dental Clinic, was the training clinic for the first dental hygienists (called dental hygiene nurses at the time) in Japan. A culture that prioritizes constant dedication to the health of the patient and tackling new challenges has been passed down and has been consistently maintained for over 90 years.

Thai elementary schoolchildren participate in the 70th Schoolchildren's Mass Toothbrushing Training via the Internet.



# The Schoolchildren's Toothbrushing Tournament expands worldwide

Targeting participation by 5,000 schools and 500,000 people overseas

The Schoolchildren's Mass Toothbrushing Drills that helped prevent so many children's cavities continue to evolve more than 80 years after their start in 1932. The activity has changed from group toothbrushing exercises to more individualized tutorials that address lifestyle habits, including toothbrushing. Beginning with the 65th such event in 2008, it has also been delivered simultaneously over the Internet, making it easier for people to participate.

Lion has also expanded its oral health activities overseas with a focus on Asian countries, beginning with Taiwan in 1984, followed by South Korea, China, the Philippines, Vietnam, Thailand, Malaysia and Indonesia. Participation in the Oral Health Event of Tooth Brushing for Children is thereby increasing year by year, and at the 72nd such event held in 2015, in addition to 1,287 schools from Japan, 15 schools from seven different countries and regions in Asia also participated. The total number of participating schools reached 1,302. Therefore, the training has grown into a large, international event. With delivery over the Internet, students can participate from their own country and school using the same teaching materials. This event has been highly praised by officials as "a fun way to learn about the health of the mouth and teeth." Lion's goal is to have one million children from 20,000 schools in Japan, and 500,000 children from 5,000 schools overseas participate in the event. Our motivation to improve children's health continues to grow.



The Touch and Understand Toothbrushing Book with easy-to-understand 3D representations (left) and Kidzania Tokyo (right).

# Meeting the challenge of making information barrier-free

## Bringing oral health activities to everyone

At Lion we are diversifying our delivery of information to bring our various oral health initiatives to more and more people.

To provide barrier-free information for the visually impaired, we issue product information twice a year in Braille and large print, and have been providing dental instruction to people with disabilities since 1994. We also created the Touch and Understand Toothbrushing Book in 2004, as a way of deepening understanding of oral hygiene. The book uses pictures and tactile three-dimensional representation techniques such as those used at schools for the blind, as using the sense of touch apparently makes learning much easier.

In addition, in 2006, the 110th anniversary of its first toothpaste for sale, Lion set up a mock dental clinic at the work experience theme park for children, Kidzania Tokyo. Trying out a dentist's job in a simulated work environment is a fun way to teach children about the importance of teeth.



COI: The Center of Innovation Program

# Working to extend healthy life expectancy

## Taking part in a national project for the future

Lion is taking on the challenge of participating in the Ministry of Education, Culture, Sports, Science and Technology's Center of Innovation Program (COI STREAM). For this national project, government, industry, and academia collaborate on an innovative research agenda for the future. Joining a team based around Hirosaki University, Lion is developing methods of predicting and preventing diseases such as lifestyle-related illnesses that influence healthy life expectancy. The project is using huge amounts of medical data (big data) gathered from citizens of Hirosaki over many years. Many research institutions and private enterprises also joining the team address the challenges from different perspectives. As part of this initiative, Lion aims to clarify the relationship between dental diseases and metabolic syndrome. In this program, medicine and dentistry are joined in unusual ways, and expectations are growing for the research to yield groundbreaking results.

Since 1913, Lion's oral health initiatives have consistently taken on the challenges of the times. We will tirelessly address challenges in the future to make people happier through oral health.

## Taking on the challenges of the next generation: The LDH Symposium

The symposium was held at the Toranomon Hills Forum in Tokyo, with the backing of organizations such as the Japan Dental Association, the 8020 Promotion Foundation, and the Japan Dental Hygienists' Association.



## Aiming for dental care that makes greater contributions to healthy longevity

### ● Symposium held for dental care workers

On June 26, 2016, the Lion Foundation for Dental Health held a symposium with the theme of “The mission and possibilities of dental care aimed at extending healthy life expectancy”, in which researchers, dentists, and others who are active in the forefront of the dental care field gathered for lectures and comprehensive discussions. Taking the stage for the keynote address was former American Academy of Periodontology president Joan Otomo-Corgel, who stressed the importance of that mission: “In the U.S., there are reports on the relationships between periodontal disease and diabetes, heart disease, osteoporosis, respiratory illness, and more. Now more than ever, dental care workers are standing as the front line of defense for overall health.” Furthermore, Professor Ichiro Tsuji of the Tohoku University Graduate School asserted that coordination between medical and dental care is essential to extending healthy life expectancy, and that implementing such cooperation is a matter of urgent importance. Professor Atsuo Amano of the Osaka University Graduate School explained the mechanism by which periodontal disease bacteria have a negative impact on the entire body, and emphasized the necessity of oral health maintenance throughout one’s lifetime. In addition, panel discussions, which were also joined by private practitioners, developed into heated debates. There was a shared recognition between participants that in order to overcome periodontal disease, which is said to be humanity’s most widespread infectious disease, there is a need for cutting-edge treatments as well as long-term preventive dental care from regional dental clinics. The discussions became a meaningful opportunity to shed light on the best path for the future of dental care.

LDH book fosters  
toothbrushing culture

"A 100-Year Tale of  
Toothbrushing", B5  
softcover, 258 pages  
Edited: Lion Foundation  
for Dental Health  
Published: Diamond, Inc.



## How did the custom of people brushing their teeth come to be?

### ● LDH publishes "A 100-Year Tale of Toothbrushing"

When did people first start brushing their teeth, and how did it become an everyday custom? In 2017, the Lion Foundation for Dental Health published the book "A 100-Year Tale of Toothbrushing" which puts the focus on toothbrushing, the most fundamental activity for promoting oral health, and introduces its history and the progress made by activities that helped to spread and establish it.

The first chapter looking back on history is a fascinating introduction to toothbrushing customs from before the modern era, combining historical records that begin with the toothpastes used in ancient Egypt and the Roman era, along with the toothbrushing methods of the upper class in Japan's Heian period which made use of toothpicks, and the Edo-period Japanese method of rubbing the teeth with sand and salt. Chapter 2 covers Japan's Meiji era onward and goes into details about the progress made through oral health promotion activities by Lion and other private enterprises along with dentist organizations to help toothbrushing become an established daily habit in Japan. Then, Chapter 3 presents an overview of the many diverse and ingenious efforts that went into producing unique advertisements and promotions as well as books, picture books, movies, and events for informing large numbers of people about the importance of toothbrushing. Chapter 4 is titled "Brushing your teeth is brushing up your health" and it explains toothbrushing's newly recognized role as a contributor to overall health and healthy longevity. From start to finish, the book's pages are filled with rich visuals and it's easy for anyone to read. It's a book that serves as a truly valuable resource regarding cultural and lifestyle history.