



## New Health Check-Up Scheme for Metabolic Syndrome in Japan

**By Ichiko Fuyuno**

Senior Science and Innovation Officer

The British Embassy, Tokyo

Tel: 81-3-5211-1325

Fax: 81-3-3230-4800

Email: [ichiko.fuyuno@fco.gov.uk](mailto:ichiko.fuyuno@fco.gov.uk)

April 2008

## **INDEX**

1. EXECUTIVE SUMMARY .....	3
2. INTRODUCTION – Behind Japan’s Worries about Metabolic Syndrome.....	4
3. NEW CHECK-UP SCHEME .....	8
3.1. Scheme outline .....	8
3.2. Penalties .....	10
4. PROS AND CONS OF CHECK-UP SCHEME .....	12
5. CONCLUSIONS .....	13
FEATURE: “Metabolic” vice ministers run blogs on diet .....	14

The information in this document is believed correct at the time of distribution. However, HM Government accepts no liability for any loss or damage incurred as a result of any inaccuracies, however caused.

All reports by S&I Section in the British Embassy Tokyo can be found at [http://www.uknow.or.jp/be\\_e/science/reports/index.htm](http://www.uknow.or.jp/be_e/science/reports/index.htm)

## **1. EXECUTIVE SUMMARY**

On 1 April 2008, Japan introduced a new health check-up scheme to examine people for symptoms of "the metabolic syndrome," a disorder raising the risks of stroke, cardiac infarction, diabetes and other lifestyle-related diseases, and caused mainly by excessive visceral fat. It is often said to be a result of lack of exercise and unhealthy diet. The targeted people by the new scheme are those aged 40-74, and expenses are covered by public health insurance associations. In Japan, these associations are run by employers of the insured or municipal governments, with the funding supported by the insured, parent organisations of the insurers and the government's subsidies.

The new scheme is an unusual large-scale national project targeting 57 million people, or about 45% of Japan's total population. The Ministry of Health, Labour and Welfare (MHLW) considers the syndrome a serious problem that must be tackled to curb the mounting medical expenses in Japan's rapidly ageing society. MHLW expects the new scheme will reduce medical expenses in the long run, but wants to make sure to avoid wasting taxpayers' money without showing visible results. Therefore, MHLW requires health insurance associations to arrange for nutritionists and nurses to provide follow-up support for people to change their habits if their results are bad.

Significantly, MHLW will blame not individuals but the insurers for poor outcomes. If the insurers fail to achieve some numerical targets, including a reduction in the number of "metabolic" people in five years, MHLW would impose a penalty for a completely different matter -- a 10% reduction in the amount of subsidies for another new health insurance scheme for the senior elderly aged 75 and older. That would lead to raise financial burdens for these insurers, which have to contribute some funding for the new scheme by collecting additional premiums. In the opposite case, MHLW would increase the subsidies by 10%. The insurers are already attempting to produce positive outcomes by educating and motivating their people to take care of themselves (mainly eat well and do exercise).

This report describes the background of why Japan introduced the new check-up scheme. It then introduces the scheme and investigates potential problems.

## 2. INTRODUCTION – Behind Japan’s Worries about Metabolic Syndrome

The metabolic syndrome has become a buzzword in Japan over the past few years. People are becoming more health conscious than ever, and fast-selling products in the shops include cooking oil, Japanese teas and over-the-counter drugs aimed at reducing body fats. Last year, videogame maker Nintendo sold 1 million units of the home fitness game “Wii Fit” in the first month on sale alone. Many companies, including chemical firm Asahi Kasei Corp. are cashing in on the trend and have recently launched healthcare services to prevent the metabolic syndrome.

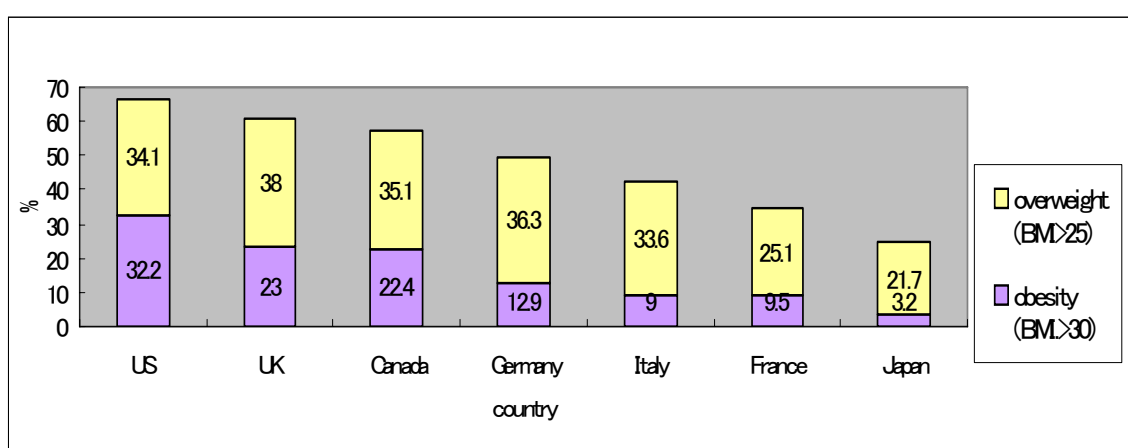
The definition of the metabolic syndrome differs between medical groups and institutions in the world. In Japan, it was defined in 2005 by eight medical-related associations as the following -- abdominal circumference measuring 85 cm or more for men, and 90 cm or more for women, plus two of the following three risk elements: high blood pressure, hyperlipemia and high fasting blood sugar (**see details of key indexes in Fig. 6**). If people have that size of the waist and one of the three elements, they are considered to be at risk of the syndrome.

MHLW cautions that the metabolic syndrome increases dramatically the risk of critical diseases. For example, a person having one of the four risk factors (the above three plus obesity) has 5.1 times higher risk of heart disease than people without such factors, MHLW estimates. The number goes up to 5.8 times for people with two risks, and surges to 35.8 times for people with three or four risks.

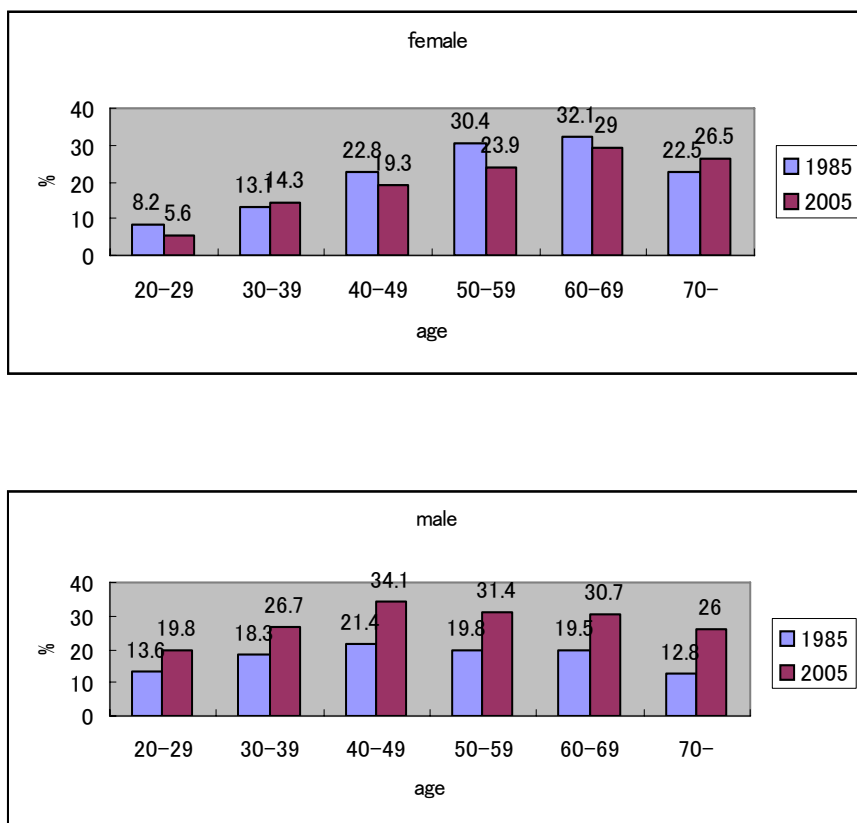
To be sure, obesity is not so worrying in Japan as it is in the US and Europe (**Fig.1**). But the number has been clearly on the rise over the past years (**Fig.2**). Currently, 9.4 million people out of the 57 million aged 40 and 74 are estimated to have the metabolic syndrome in Japan, and 10.2 million more to be at risk, according to MHLW. The obesity trend is more clearly seen in men rather than women, as one in two men and one in five women in this age bracket has the syndrome or is at risk.

**Figure 1: The percentage of obese people for population**

(Source: Daiwa Research Institute. Original data: OECD Health data 2006)



**Figure 2: Japan's obesity trend (% of total population in each age bracket.)**  
(Source: MHLW)



The increasing number of patients with the syndrome means greater medical expenses, which would hamper Japan's economic growth. Already, Japan's national medical expenses continued to surge every year, topping 33 trillion yen (GBP157.7 billion) in 2005 (**Fig.3**). It is likely to continue to increase due to the rapidly expanding elderly population, with an estimate of 65 trillion yen by 2025.

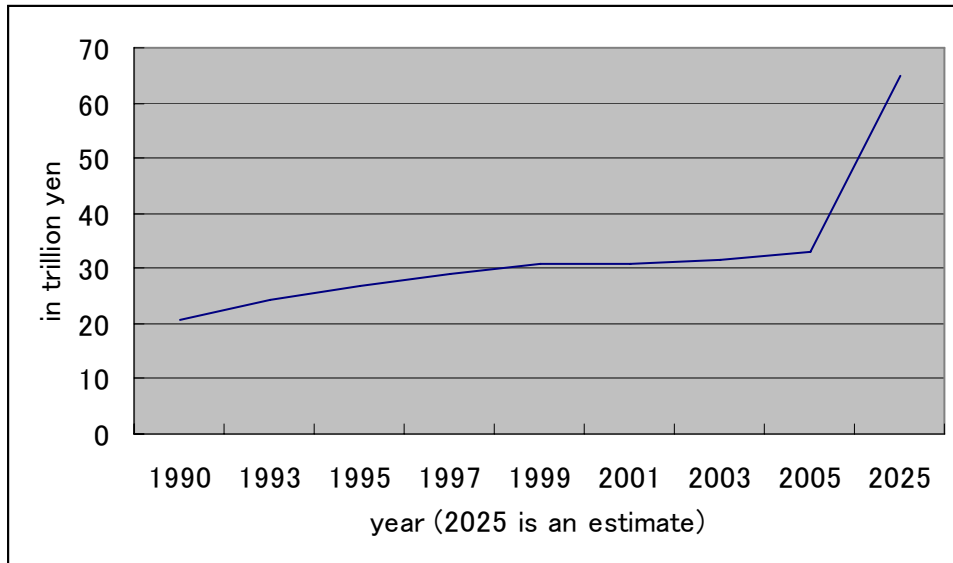
**(see more in the Embassy report; "Ageing Society in Japan - Part I" issued in Aug. '07, [www.uknow.or.jp/be\\_e/science/reports/Policy/index.htm](http://www.uknow.or.jp/be_e/science/reports/Policy/index.htm))**

In Japan, actual medical expenditure is covered 70% by public health insurance and 30% by patients. So, all people are obliged to join public health insurance associations which are different depending on their employment status and age. Many of them belong to those managed by their employers. Self-employed, young or retired people and people without a job join the associations managed by municipal governments. Insurance schemes for small company employees have been managed by the Social Insurance Agency, but this job will be transferred to an independent health insurance body to be established in October 2008.

Many associations have been suffering from the shortage of revenues. In fiscal 2002, 80% of corporate health insurance associations marked the loss, and after that a patient's burden was raised from 20% to 30% of his/her medical expenditure. Nevertheless, revenues at associations have been falling since fiscal 2005 and the year 2008 will likely face a severe situation again, according to the National Federation of Health Insurance Societies. Now that healthy financial management is

impossible without curbing the total medical expenditure, the government puts great efforts on preventive medicine by reducing the number of potential patients.

**Figure 3: Japan's national medical expenses**  
(1 trillion yen = approx. GBP4.7 billion yen)

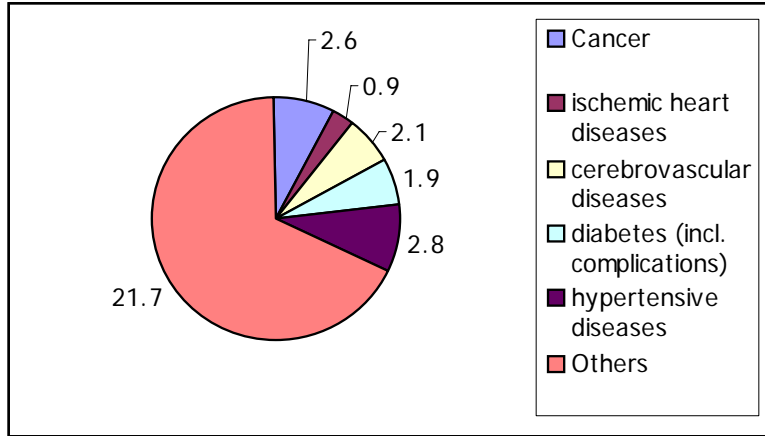


(Source: MHLW)

MHLW says the metabolic syndrome is mainly the result of lack of exercise and unhealthy diet, so it can be prevented with an individual's own efforts. In June 2006, the Diet passed a set of bills to revise medical and insurance related laws, which included the creation of a specific check-up targeted at the metabolic syndrome, with the expenses covered by public health insurance associations. The government aims to reduce the number of people having or at risk of the syndrome by 25% by fiscal 2015, when it hopes to shrink the total medical expenses by 2 trillion yen (GBP9.5 billion). **(Fig. 4 & Fig. 5).**

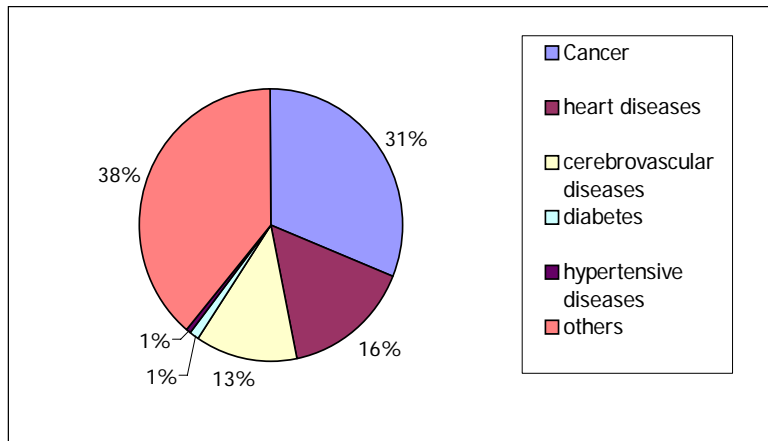
(see also FEATURE: *"Metabolic" vice ministers run blogs on diet on page 14*).

**Figure 4: Japan's public medical expenses stood at 32.1 trillion yen (GBP152.8 billion) in FY04. Lifestyle-related diseases (including cancer in this figure) amounted to one third of the total, or 10.4 trillion yen.**



(Figures in trillion yen. Source: MHLW)

**Figure 5: Causes of Japanese deaths (FY2004)  
– Lifestyle diseases, including cancer, accounted for 61%.**



(Source: MHLW)

### 3. NEW CHECK-UP SCHEME

#### 3.1. Scheme outline

Since the new fiscal year started on 1 April 2008, health insurance associations have been required to add new examination items to an annual mandatory health check-up for their insured aged between 40 and 74. The insured's families will also be covered by the scheme.

The main item added is a measurement of the abdominal circumference, because abdominal obesity is the major index of visceral fat. Unlike conventional check-ups, which simply inform people of the results, the new scheme requires them to consult with nutritionists, health nurses or doctors if their results exceed standard levels and show the symptoms of the syndrome. These health experts will support them to gain healthy habits through proper exercises and a balanced diet.

The support by health experts such as nutritionists and nurses will consist of three levels – active support for patients or high-risk people, incentive support for lower-risk people and information offering for people with no risk categories **(Fig.6)**. MHLW puts the sample support programmes on the Website as a reference, but basically entrusts the health insurance associations to create detailed programmes of each support scheme at their own discretion (Figs. 7, 8 & 9).

**Figure 6: Categories for active/incentive support**

(Source: MHLW)

Abdominal circumference	Additional risk ① high blood sugar ② high lipid ③ high blood pressure	Smoking record	Age	
			40-64	65-74
≥ 85 cm (men) ≥ 90 cm (women)	More than two of the above three risks	N/A	Active support	Incentive support
	One	Yes		
		No	Incentive support	
Smaller than above but BMI ≥ 25	All the 3 risks	N/A	Active support	Incentive support
	Two	Yes		
		No	Incentive support	
	One	N/A		

① Fasting blood pressure ≥ 100 mg/dl, or HbA1c ≥ 5.2%

② Neutral fat ≥ 150mg/dl or HDL cholesterol < 40 mg/dl

③ Blood pressure 130mmHg/85mmHg

**NOTE:** Those who had none of ①~③ are given information about how to keep healthy life.

Those who are taking medicines to treat ①~③ are excluded from the support programme.

**Figure 7: Support programmes (MHLW's blueprint: Detailed plans are determined by each health insurance association)**

**Active Support**

Support Start	Face to face interview by nutritionists, nurses or doctors: 30 mins for individual support, 90 mins for group support
↓	
2 weeks later, 1 and 2 months later	Support by email, telephone
↓	
3 months later	Interim check-up (abdominal circumference, weight), interview
↓	
4, 5 months later	Support by email, telephone
↓	
6 months later	Evaluation, interview to support them to maintain their behaviours until the next mandatory check-up.

**Incentive Support**

Support Start	Face to face interview by nutritionists, nurses or doctors: 20 mins for an individual, or 80 mins for a group.
↓	
6 months later	Evaluation by interviews (face-to-face individual/group, telephone, email etc) to see if their health conditions and behaviours have changed.

**Information Offering**

Information to help support a healthy life will be sent to all the people who took the specific check-up along with the delivery of its results. The content is different for each person. It includes tips on how to improve lifestyle habits and understand the check-up results precisely. Information about neighbouring fitness clubs can be also provided.

**Figure 8: The main examination items for the specific check-up**

- Questionnaire on medication record and smoking habits
- Measurement of height, weight and **abdominal circumference**
- BMI (body mass index)
- Blood pressure
- Liver function test (GOT, GPT,  $\gamma$ -GTP)
- Blood lipid (neutral fat, HDL cholesterol, LDL cholesterol)
- Blood sugar (fasting blood sugar or **HbA1c**)
- Urine test

NOTE: Items except for abdominal circumference and hbA1c have been already included in conventional check-ups.

(Source: MHLW)

### **3.2. Penalties**

The most difficult thing to make the support programme really work will of course be to keep people motivated to continue their efforts. To prevent dropouts and generate visible outcomes in five years, MHLW plans to assess the outcomes of the “metabolic syndrome check-up” in 2013.

MHLW will impose financial penalties if the insurers fail to decrease the number of their people having the syndrome or being at risk, fail to improve the results of check-ups to a certain level, or fail to implement the check-up properly. The penalty means a maximum 10% decrease in the amount of subsidies for a new public insurance scheme, started this fiscal year, which will cover medical expenses for the elderly aged 75 and older. This reduction would have financial consequences for the younger generation, who will shoulder 40% of the premiums (the government makes up 50% of the total and the remaining 10% comes from the senior elderly themselves). Because the premiums are collected through public insurance associations, the amount would likely depend on which association people belong to.

In contrast, if the insurers hit their targets, MHLW will increase the contribution to the elderly insurance scheme by 10%.

The numerical standards for the penalty aren't precisely determined. But MHLW says the insurers should aim to reduce the number of people having the syndrome or being at risk by 10% in five years as a result of the follow-up support, among other targets. People already having medical treatment for lifestyle-related diseases and those who are prescribed drugs as a result of the specific check-up will be excluded from the statistics.

**Figure 9: MHLW’s sample “check-list” for people receiving the active support. They are required to fill in this kind of sheet every day. Companies/municipalities create similar checklists on their own.**

<b>Date</b>	Month, Date	Month, Date
<b>Body check</b>		
Weight	I checked (time, kg) I didn't check	I checked (time, kg) I didn't check
Abdominal circumference	I checked I didn't check	I checked I didn't check
<b>Exercise check</b>		
Normal walking 10 mins	I did. I couldn't.	I did. I couldn't.
Fast walking 10 mins	I did. I couldn't.	I did. I couldn't.
Sit-ups	I did. (No. of times) I couldn't.	I did. (No. of times) I couldn't.
Today's waking steps (by pedometer)	I did. (No. of steps) I couldn't.	I did. (No. of steps) I couldn't.
<b>Meal check</b>		
Do not have sweet carbonated drink	I did. I didn't.	I did. I didn't.
Use low-calorie sweetener for coffee	I did. I didn't.	I did. I didn't.
Eat fried/stir-fried meal once a day at most	I did. I didn't.	I did. I didn't.
No late-night meal	I did. I didn't.	I did. I didn't do.
<b>Comprehensive check</b>		
I did well today!	Yes No	Yes No
I feel good today.	Yes No	Yes No

#### 4. PROS AND CONS OF CHECK-UP SCHEME

For many people, the main question of the scheme may be whether such meticulous support would really work and improve people's health. At least, some preliminary attempts have shown short-term numerical successes, so the support may become an effective tool. (Fig. 10).

**Figure 10: Success examples to reduce the risk numbers of the metabolic syndrome. (source: MHLW)**

These attempts were financially supported by the government ahead of the introduction of new check-up scheme.

Programme operator	Results	Targeted people, Project duration	Support
Comprehensive Health Science Centre, Aichi Pref. (N = 59)	- No. of people without any risk (22→26) - No. of people at risk 23→19) - No. of people having the metabolic syndrome (14→5)	The centre's obese male employees aged 20-40. 3 months	The centre provided individual consultation by email and follow-up of their programme. At the beginning and end of the project, they held a group meeting.
Nihonmatsu-city, Fukushima Pref. (N = 49 men, 135 women. Total 184 for intervention, control groups)	At the end of the month, medical expenditure increased 24% for the control group, while it increased only 9% for the intervention group.	Its residents aged 30-79 and had one of these problems (lipid, blood pressure, blood sugar, BMI). 5.5 months	The city held a class for them once every two weeks, coupled with individual consultation and group exercises (4 times)
Amagasaki-city, Hyogo Pref. (N = 127)	The number of people having 4 metabolic syndrome risks dropped 60% in one year (127→51).	Its employees. 12 months.	After the check-up, the city provided group education twice, one individual consultation and follow-up by email or telephone.

However, doctors and medical researchers are raising concerns about the efficacy of the check-up scheme itself.

In his 2007 book titled "*the trap of the metabo,*" Dr. Yoichi Ogushi, professor of the medical school at Tokai University, said that the specific check-up could cause an adverse effect on the government's finance. He collected data of 700,000 patients from 45 medical institutes affiliated with the Japan Society of Health Evaluation and Promotion, and investigated 51,432 of them who had taken all items included in the specific check-up. Then he made a simulation and estimated that 30 million people aged 40-74 would be found some problems that cannot be dealt with support

programmes and encouraged to go to hospital as a result of the specific check-up. That would lead to raise medical expenses by between 4.49 trillion yen (GBP21.3 billion) and 5.33 trillion yen (25.3 billion) per year.

Separately, the Japan Society of Public Health issued a statement in 2007, criticising the support programmes because they didn't include health advice on smoking, although this is a major cause for many lifestyle-related diseases. The male smoking rate has been falling, but it was a high 46% in 2005 and ranked the fourth highest among OECD countries, after Korea, Turkey and Greece, according to OECD Health Data 2007. The figure then dropped to 40.2% in 2007, but is still higher than 24% of the UK (in 2005). The female smoking rate has been hovering at around 14% over the past 40 years.

Moreover, many municipalities are not convinced of the efficacy of the specific check-up scheme, Mainichi Shimbun reported on 26 March 2008. Of the 562 cities that responded to its survey, only 9.1% said they see no problem about the scientific evidence used to introduce the specific check-up scheme. Some 26.3% said the government should be more cautious and introduce it after certain positive outcomes are confirmed.

## **5. CONCLUSIONS**

Japanese are in general health conscious, so a campaign against the metabolic syndrome has apparently become an accepted idea. Companies and municipalities are also providing active support to prevent their people from having the syndrome. City governments organise classes to teach how to do home exercises properly. At the cafeterias of many large companies, people can check the calorie content of their lunch simply by putting the tray of their meal selection in front of the cashier. Asahi Brewery Ltd. even gives a prize to employees if they achieve their health goal, such as "no use of an escalator," in two months. At the very least, the new check-up scheme will become a good signal to remind people of the need to take care of themselves.

However, the scheme itself will likely be put into scrutiny within a few years. As concerns are already rising from doctors and insurers, MHLW will likely be forced to revise the check-up and support schemes by 2013 when they review the outcomes. If the definition of the metabolic syndrome changes (which is possible), the efficacy of the scheme will come under greater debate. Whether medical expenses will be really reduced also needs to be closely monitored. And of course, the voices of taxpayers themselves need to be heard when they actually start using the check-up scheme soon.

## FEATURE: "Metabolic" vice ministers run blogs on diet

When the Ministry of Health, Labour and Welfare (MHLW) was bracing itself to tackle the metabolic syndrome in 2006, its two podgy senior vice ministers were clearly easy targets. So, the ministry hit upon an unusual public-awareness campaign: show the progress of how much the two men reduce their abdominal circumference in six months. Their target was to reduce the waist by 5-6 cm and weight by 5-6 kg.

The project to "exterminate the metabolic syndrome" started in December 2006 and ended in May last year. These senior vice ministers, Keizo Takemi and Noritoshi Ishida, ran a weekly blog to show their progress on the ministry's website. That public attention was enough to keep their motivation up for unpleasant activity – walk at least 10 minutes a day, do squat and sit-ups at home and limit consumption of sweet, beer, and oily food.

The result: Mr. Takemi successfully met the goal by reducing the weight from 84 kg to 76.7 kg, and the waist from 100.5 cm to 95 cm. Mr. Ishida reduced weight from 88 kg to 80 kg. His waist shrunk from 101.5 cm to 99.2 cm, but not so much as he expected. "I feel my body is light. I found my way of thinking has become positive," Takemi commented on his blog.



**Pictures:** Former senior vice ministers of health, Keizo Takemi, left, and Noritoshi Ishida, right, having their abdominal circumferences measure by the ministry's dietician.

Source: MHLW website:

<http://www.mhlw.go.jp/bunya/kenkou/metabo/index.html>

To make sure that this report meets your needs, please may I ask for your assistance in taking part in the on-line questionnaire to give your feedback.  
[http://www.uknow.or.jp/be\\_e/science/reports/feedback/](http://www.uknow.or.jp/be_e/science/reports/feedback/)