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## 1. Introduction

As has been shown in anthropological studies, putting skills to use does not necessarily follow their acquisition. Rather, learning is often a part of the very routines it brings about (Fukushima 2001; Lave and Wenger 1991). Similarly, the self-management of chronic conditions, such as diabetes, is more than simply the internalization of a scientifically given knowledge. The techniques of putting pharmaceuticals to use are embedded in an open-ended mediation of disease: an attunement of bodies and their affects.

The increasing presence of pharmaceutical innovations in Japan calls for a shift of focus to the local settings of learning and appropriating all kinds of medications in daily life, of how people come to understand pills and injections that are designed to treat their disease. My interest in diabetic medications is in trying to understand how new and progressively rich human senses are mobilized through the collective social and technological generation of matters of fact.<sup>1</sup>

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*A note on names.* The name of the hospital, as well as all personal names appearing in the article have been changed to protect the privacy of the people who were willing to tell me their stories. Japanese personal names are given in the customary Japanese order, putting the family name first, then the given name.

- <sup>1.</sup> This article is part of an ongoing research, in which I focus on chronic diseases in Japan by examining how the decay of the human body is attended and conceptualized in medical practices and popular health culture. This is an ethnographic attempt to draw attention to the important and often neglected dimension of the mediation between scientific facts and cultural meanings at various sites of disease: a diabetes center in northern Japan, a patient group in downtown Tokyo, and a multinational pharmaceutical company.

In this paper, I will present some stories to show that the lived body is not reduced by its encounters with particular things. Bodies and artifacts, I will argue, are instead part of one another. Building my analysis around the anthropological concept of embodiment, I describe how daily encounters with medical technologies and popular health practices introduce new ways of attending bodies (of self and other).

## 2. *Mi ni Tsukeru*

At the Suzuran Hospital<sup>2</sup> – the site of my research – this means “putting disease on the body.” *Mi ni tsukeru* is a crucial way of doing diabetes in Japanese medical settings, although it is virtually never conceptualized as such. As a linguistic term, it encompasses a wide range of meanings that seem to evade any easy translation. It refers literally to the act of wearing clothes, or putting something – an object – on the body. A piece of jewellery, for example. But in its most common usages at the sites of diabetes care *mi ni tsukeru* becomes a disposition and power to learn, to acquire a skill, to know disease.<sup>3</sup> Patients indeed have to “put many things on their bodies”: skills of guessing calories and dropping glucose levels, habits of living with a threat of complications (*gappeishō no kuse wo mi ni tsukeru*), the shape of the pancreas, the width of vessels, not to mention new lifestyles (*atarashii seikatsushūkan wo mi ni tsukeru*) that have to be acquired most of all. The list is too long to continue.

Disease is not only something to be treated anymore, but is itself the act of treatment: keeping blood sugar levels close to the normal. This kind of normalcy is neither a personal nor a biological given. It is instead a careful balancing between the two. Normal blood sugar, so doctors and nurses say, is a matter of good diet and regular exercise. Such a foreclosure of healthy life as a strategy of treatment, how-

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2. Suzuran Hospital is a private institution in a city in northern Japan specialized in the treatment and follow-up of diabetes and its major complications by providing everything from diagnosing elevated glucose levels to complete dialysis care under the same roof. At the time of my fieldwork, the complex consisted of three main units: an outpatient clinic (with more than 2000 registered patients), a 100 bed diabetes ward, and a 40 bed dialysis center making it a medium-size elite institution in the middle of the city.

3. Classic semantic approaches to the interaction of human and non-human actors usually fail to explain this embodied dimension of *using* technologies. While they claim to discuss technologies in practice, their real focus is on how meanings from signs are configured (Woolgar 1991) or inscribed (Akrich 1992) to technological objects. Haraway’s figure of the cyborg is probably closer to what the Japanese language refers to as *mi ni tsukeru*, but here, in my opinion, the relations between humans and machines are rarely treated as practicalities in the strict sense of the word (Haraway 1991 [1985]).

ever, is not without its own technologies. It is a practice of disease in which human selves and pharmaceutical products have become increasingly interdependent.

Attending to diabetes, here, follows the selection of medications. How do pills, injections, aerosols, granules, and other pharmaceuticals control blood sugar, stimulate insulin secretion, break down fat cells, or replace hormones?

### 3. The Logic of Choice

#### 3.1. At the clinic

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I happened to be there in the examination room at Ikeda san's first visit in the Suzuran Center. She was a flabby old woman in her late seventies. She had a long history of diabetes and cardiovascular complications but there were other problems with her disease as well. She had been administering insulin to herself for more than a year, as her former doctor had instructed her "to help stimulate the pancreas," but it caused frequent attacks of hypoglycemia, an abnormally low level of sugar in the blood.

"You know, doctor," Ikeda san said, "I follow the prescription, I really do. I take my shot every morning before breakfast, not too much, not too little. But then, around noon, my hands start shaking and sweat breaks out on my body in the weirdest way, and it's... it's just frightening, you know... Once I even passed out in the supermarket. Oooh, that was so awkward."

Next, she pulled out a little device that looked like a pen and contained 2ml insulin, a dose that helped to control her glucose levels for a month. Or, rather, it didn't. That was actually the problem that brought Ikeda san to Suzuran Hospital that day. After a quick look at her leg, the physician proposed a two-week program in the inpatient unit, where she could learn to use insulin in a better way. This was the normal procedure in the hospital: bad glucose control, two weeks hospitalization for training and a general checkup.

But not for Ikeda san, whose husband laid bedridden at home after a stroke. The very reason she came to the hospital that day was to quit insulin somehow. This surprised the doctor for a moment, but after a second thought he answered in a firm tone: "OK, so you want tablets, I see. Fine with me. We try some pills, and let's see what happens. If you feel worse, or your numbers get worse, we have to switch back to injections. You see, it is important that you understand this now."

### 3.2. Needles and pills

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Diabetes medications became increasingly common tools of bringing blood sugar under good control. In a country where a couple of decades ago some people with diabetes had to visit the clinic each day for insulin shots, it is now a simple act of prescriptions twice a month — five minutes at the most — to receive one pack from the various types of available pharmaceutical products.

The two main categories of diabetes medications are insulin shots and pills, or hypoglycemic agents. The former is a replacement for the hormone — produced ideally in the pancreas — that helps to turn food into energy by encouraging cells to take up sugar in the blood. Those people whose pancreas does not produce this hormone at all must inject insulin daily. New versions of analogues, recombinant insulin and the different subcategories of fast and slow acting agents or mixed doses, however, have made it an option for those — and they make up more than 95% of diabetes patients — who do have insulin, but not in sufficient amount, or whose bodies are less sensitive to it.

Diabetes pills, on the other hand, do not substitute for insulin, but help bodies to release and use it more effectively. These oral agents also include a wide range of increasingly differentiated therapeutic classes depending on which point they intervene into the complex process of glucose metabolism.

Such an overabundance of treatment modalities is not only a sign of how chronic diseases become a permanent market of pharmaceutical goods to choose from, although this is an important topic too. It also shows how such a logic of choice — different but not independent from the market — forms new relations between diabetes medications and their users, in which they come to depend on each other (Mol 2008). Pills and injections both help to lower glucose levels, but they do not treat disease in the same way. They instead bring along the reorganization of bodies by allowing social and biological identities include each other in the form of managing diabetes.

## 4. Metabolic Senses

As patients were often told, it was in/on their bodies that the knowledge of disease and the materiality of the medication intersected. In the lecture room, a comprehensive two-week education program helped people with diabetes to learn about their disease. The Monday morning class was about “Diabetes Medications.”

The nurse arrived with an OHP slide that explained the working mechanism of various oral agents in the treatment of diabetes. One of them was Amaryl<sup>®</sup>, which stimulates the so-called  $\beta$  cells in the pancreas to release more insulin and

helps the rest of the body to use it effectively. The nurse never forgot to remind listeners that the drug was *not a substitute* for good nutrition and daily exercise. Those who failed to adjust their habits to the working of medication in their bodies would have to face the dangerous consequences of oscillating glucose levels. If it had sounded vague and pedagogic, the map of the human body on the overhead projector showed such connections at a glance: the routes of the drug in the body marked out the links between scientific theories of insulin deficiency and one's daily life of eating with friends or alone, or working overtime rather than following warnings on the prescription. Such links, the OHP explained, had to pass through the pancreas, the liver and fat cells in order to become links at all. Drugs, too, were part of the embodied practices of linking facts and values.

One of the underlying arguments of actively engaging people in their own disease came from the need to make them sensitive to the invisible processes inside their bodies. But how? Images of the metabolism on OHP and the daily training of injection made connectedness between sensations of pain, hunger and faintness, between clogged arteries and failed kidneys, and sometimes they linked Kawaguchi-san's fast heartbeat to Murakawa-san's impaired vision. Diabetes medications, however, produced the scientific results they were designed for only on bodies that had learned to make such differences.

Thus, the prescription of medicines at the outpatient clinic often followed conversations that made sure the patient was choosing not only between drugs, but between forms of life. Physician to patient: "Didn't you say you have often business meetings (*settai*) in the evenings? Will you be able to inject insulin there? Or should we go on with morning shots of the long-acting type? I can't guarantee that your blood sugar will be perfect, but it will still be better than it would be if you missed those evening shots."

What the concerted efforts of physicians, pharmaceutical companies and health care reformers toward such informed choices failed to attend to is the complexity of choosing. That a person's attitude toward his/her disease is not merely a prerequisite to drug therapy, but the very context of the metabolic processes that the drug affects. That the personal and the biological happen to be many not in a pluralist sense, but in a relational way: they are related through the choosing between various therapeutic means. In the words of Marilyn Strathern: "Attending to the whole person requires its own technology, its own artifacts." (Strathern 2004:1). Needles and pills are just such artifacts.

## 5. Pharmaceutical Relations

Diabetes medications are not magic bullets, not even insulin. People have to *relate* to them, and they, in turn, have to pass through bodies — not only vessels, but trembling hands too — in order to be effective. Pharmaceuticals, as João Biehl expressed it very powerfully, are literally *the body that is being treated* (Biehl 2004:486). When medications are “put on bodies,” they make each other be moved and be affected. Knowing diabetes presumes then that there is an effort to become interested in caring for disease, that there are objects and bodies to make links, *inter-esse* (Despret 2004).

Saying that scientific and human values are intertwined implies that the appropriation of medical innovations is more dynamic and conflicting than usually assumed in social theories of medicine. One, if not the most, important aim of an *ethnography of disease* is the critique of the dominant pluralist mode of the social sciences that, in short, understands medical knowledge as an extension of cultural and/or human diversity. The question that I addressed here, then, is not the classic polemic of medical anthropology over the scientific and/or cultural grounds of the embodied self. On the contrary, these episodes are empirical attempts to engage the critical role of particular objects and particular technologies in drawing out the connections between scientific facts and human suffering.

The overabundance of pharmaceuticals do not invade the endless plurality of cultural meanings (as social theorists of medicine like to point out), nor replace them with an infinite multiplicity of medical solutions (as pharmaceutical marketing may imply). Biological facts and individual sufferings, instead, are linked up and coordinated in the practices of taking pills and injecting insulin. It is the modes of learning to be affected by disease and its mediations through pharmaceutical means that make all those cultural and biological differences come to matter for each other - collectively and politically.

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