1 Supplementary Figure 1: The kinds of dermatoses in the Da Qing Diabetes Study.

2 Supplementary Table 1: Basic characteristics of study subjects.

| Characteristics | Year-1986 | Year-2016 |
|-----------------|-----------|-----------|
| N               | 383       | 383       |
| Sex             |           |           |
| Male            | 161       | 161       |
| Female          | 222       | 222       |
| Age (years)     |           |           |
| Mean            | 39.78     | 69.78     |
| SD              | 6.74      | 6.74      |
| Range           | 23–59     | 53–89     |
| BP Level        | N (%)     | N (%)     |
| Normal          | 238 62.1  | 131 35.1  |
| Stage 1         | 96 25.1   | 141 37.8  |
| Stage 2         | 32 8.4    | 74 19.8   |
| Stage 3         | 17 4.4    | 27 7.2    |
| Total           | 383 100   | 373 100   |
| Index           | N (%)     | N (%)     |
| <18.5           | 9 2.3     | 6 1.6     |
| 18.5–23.9       | 148 38.7  | 127 34.2  |
| 24.0–27.9       | 155 40.5  | 171 46.1  |
| ≥28             | 71 18.5   | 67 18.1   |
| Total           | 383 100   | 371 100   |
| BMI Group       | N (%)     | N (%)     |
| NGT             | 164 42.8  | 68 17.8   |
| IGT             | 130 33.9  | 51 13.3   |
| T2DM            | 89 23.2   | 264 68.9  |
| Total           | 383 100   | 383 100   |

4 BG: Blood glucose; BMI: Body mass index; BP: Blood pressure; IGT, Impaired glucose tolerance; NGT: Normal glucose tolerance; SD: Standard deviation; T2DM: Type 2 diabetes mellitus.
Supplementary Table 2: The prevalence of skin diseases in the Da Qing Diabetes Study.

| Categories                        | Dermatoses                          | N   | Percent (%) |
|-----------------------------------|-------------------------------------|-----|-------------|
| Disturbances of pigmentation      | Hyperpigmentation                   | 63  | 16.45       |
|                                   | Vitiligo                             | 4   | 1.04        |
|                                   | Solar lentigo                        | 1   | 0.26        |
|                                   | Freckle                              | 1   | 0.26        |
|                                   | Nevus of Ota                         | 1   | 0.26        |
|                                   | Idiopathic guttate leucoderma        | 36  | 9.40        |
|                                   | Post-inflammatory pigmentation       | 51  | 13.32       |
| **Total**                         |                                     | 157 | 40.99       |
| Allergic dermatoses               | Allergic dermatitis                 | 7   | 1.83        |
|                                   | Urticaria                            | 9   | 2.35        |
|                                   | Drug eruption                        | 1   | 0.26        |
|                                   | Solar dermatitis                     | 2   | 0.52        |
|                                   | Dermatitis                           | 19  | 4.96        |
|                                   | Eczematoid dermatitis                | 2   | 0.52        |
|                                   | Seborrheic dermatitis                | 1   | 0.26        |
|                                   | Eczema                               | 2   | 0.52        |
|                                   | Allergic purpura                     | 1   | 0.26        |
| **Total**                         |                                     | 44  | 11.49       |
| Diseases of the skin appendages   | Alopecia                             | 44  | 11.49       |
|                                   | Broken hair                          | 1   | 0.26        |
|                                   | Yellow nail syndrome                 | 2   | 0.52        |
|                                   | Melanonychia                         | 3   | 0.78        |
|                                   | Onychodystrophy                      | 2   | 0.52        |
|                                   | Leukonychia                          | 1   | 0.26        |
|                                   | Rosacea                              | 1   | 0.26        |
| **Total**                         |                                     | 54  | 14.10       |
| Metabolic dermatoses              | Xanthoma                             | 2   | 0.52        |
|                                   | Lichen amyloidosis                   | 1   | 0.26        |
|                                   | Diabetic foot                        | 2   | 0.52        |
| **Total**                         |                                     | 5   | 1.31        |
| Skin tumors                       | Seborrheic keratosis                 | 49  | 12.79       |
|                                   | Vascular nevus                       | 24  | 6.27        |
|                                   | Cutaneous cyst                       | 6   | 1.57        |
|                                   | Milium                               | 11  | 2.87        |
|                                   | Skin swelling                        | 1   | 0.26        |
| Category                                      | Condition          | Subjects | %    |
|-----------------------------------------------|--------------------|---------|------|
| Lipoma                                        |                    | 3       | 0.78 |
| Fibroma                                       |                    | 3       | 0.78 |
| Scar                                          |                    | 8       | 2.09 |
| **Total*                                      |                    | 105     | 27.42|
| Papulosquamous dermatoses                     | Psoriasis          | 5       | 1.31 |
| Neurological and psychogenic dermatoses       | Neurodermatitis    | 7       | 1.83 |
|                                               | Prurigo            | 1       | 0.26 |
|                                               | Pruritus           | 89      | 23.24|
| **Total*                                      |                    | 97      | 25.33|
| Infectious skin diseases                      | Onychomycosis      | 180     | 47.00|
|                                               | Tinea pedis        | 52      | 13.58|
|                                               | Bacterial infections| 19     | 4.96 |
|                                               | Wart               | 61      | 15.93|
|                                               | Herpes zoster      | 25      | 6.53 |
|                                               | Oral herpes simplex| 1      | 0.26 |
|                                               | Chickenpox         | 2       | 0.52 |
|                                               | Herpes simplex     | 1       | 0.26 |
|                                               | Tinea cruris       | 1       | 0.26 |
|                                               | Pityriasis versicolor| 2     | 0.52 |
| **Total*                                      |                    | 344     | 89.82|
| Other dermatoses                              | Callus             | 1       | 0.26 |
|                                               | Ichthyosis         | 1       | 0.26 |
|                                               | Keratosis          | 1       | 0.26 |
|                                               | Keratosis pilaris  | 1       | 0.26 |
|                                               | Xerosis cutis      | 5       | 1.31 |
|                                               | Granuloma annulare | 1       | 0.26 |
|                                               | Varicose veins     | 42      | 10.97|
|                                               | Superficial varicose veins | 17 | 4.44 |
|                                               | Facial erythema    | 30      | 7.83 |
| **Total*                                      |                    | 99      | 25.85|

*The total subjects: if someone had any one kind of skin disease, he or she was regarded as a patient with skin disease.
**Supplementary Table 3:** The details of comorbid skin diseases or symptoms in 264 patients with T2DM.

| Skin diseases or symptoms                        | N   | Percent (%) |
|--------------------------------------------------|-----|-------------|
| Onychomycosis                                    | 133 | 50.38       |
| Pruritus                                         | 64  | 24.24       |
| Hyperpigmentation                                | 53  | 20.08       |
| Varicose veins                                   | 50  | 18.94       |
| Wart                                             | 43  | 16.29       |
| Post-inflammatory pigmentation                   | 42  | 15.91       |
| Seborrheic keratosis                             | 40  | 15.15       |
| Tinea pedis                                      | 34  | 12.88       |
| Alopecia                                         | 24  | 9.09        |
| Idiopatnie guttall leucoderma                    | 22  | 8.33        |
| Herpes zoster                                    | 19  | 7.20        |
| Facial erythema                                  | 18  | 6.82        |
| Dermatitis                                       | 15  | 5.68        |
| Bacterial infections                             | 14  | 5.30        |
| Vascular nevus                                   | 12  | 4.55        |
| Milium                                           | 7   | 2.65        |
| Urticaria                                        | 6   | 2.27        |
| Neurodermatitis                                  | 5   | 1.89        |
| Cutaneous cyst                                   | 4   | 1.52        |
| Scar                                             | 4   | 1.52        |
| Vitiligo                                         | 3   | 1.14        |
| Allergic dermatitis                              | 3   | 1.14        |
| Psoriasis                                        | 3   | 1.14        |
| Diabetic foot                                    | 2   | 0.76        |
| Pityriasis versicolor                            | 2   | 0.76        |
| Xanthoma                                         | 2   | 0.76        |
| Fibroma                                          | 2   | 0.76        |
| Solar lentigo                                    | 1   | 0.38        |
| Freckle                                          | 1   | 0.38        |
| Nevus of Ota                                     | 1   | 0.38        |
| Eczematoid dermatitis                            | 1   | 0.38        |
| Seborrheic dermatitis                            | 1   | 0.38        |
Eczema 1 0.38
Allergic purpura 1 0.38
Broken hair 1 0.38
Yellow nail syndrome 1 0.38
Melanonychia 1 0.38
Onychodystrophy 1 0.38
Leukonychia 1 0.38
Rosacea 1 0.38
Skin swelling 1 0.38
Lipoma 1 0.38
Tinea cruris 1 0.38
Callus 1 0.38
Keratosis pilaris 1 0.38
Xerosis cutis 1 0.38
Granuloma annulare 1 0.38

T2DM: Type 2 diabetes mellitus.
Supplementary Table 4: Development process of NGT/IGT/T2DM groups from 1986 to 2016.

| Baseline (1986) | NGT, IGT, and T2DM development process | Ending (2016) |
|----------------|----------------------------------------|---------------|
| Groups | N | Year | —— | Groups | N |
| NGT | 164 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | T2DMn | 58 |
| | | | | | | | | | | | | | | | | | | | | |
| | | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | | |
| | | 3 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 2 | 1 | 1 | 1 | T2DMn | 58 |
| | | 2001 | 2002 | 2003 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | | |
| | | 1 | 3 | 0 | 4 | 2 | 3 | 3 | 9 | 1 | 1 | 2 | 1 | 3 | 1 | 13 | IGTn | 38 |
| IGT | 130 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | T2DMn | 117 |
| | | | | | | | | | | | | | | | | | | | | |
| | | 0 | 1 | 14 | 2 | 26 | 1 | 17 | 4 | 4 | 2 | 2 | 2 | 3 | 8 | 4 | | |
| | | 2001 | 2002 | 2003 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | | |
| | | 2 | 2 | 3 | 1 | 8 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 13 | IGTn | 38 |
| T2DM | 89 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| Total | 383 | | | | | | | | | | | | | | | | | | | |

IGT: Impaired glucose tolerance; NGT: Normal glucose tolerance; T2DM: Type 2 diabetes mellitus.

NGTn, IGTn, and T2DMn mean the new classifications of 383 subjects in 2016.
## Supplementary Table 5: Association between the prevalence of skin diseases and the duration of T2DM.

| Duration of T2DM | Skin diseases | Total | Skin diseases (%) | $\chi^2$ | $P$ |
|------------------|---------------|-------|-------------------|---------|-----|
|                  | Normal Patient |       |                   |         |     |
| **Disturbances of pigmentation** |               |       |                   |         |     |
| ≥30              | 41            | 51    | 92                | 55.4    |     |
| 20–29            | 50            | 26    | 76                | 34.2    |     |
| 10–19            | 36            | 12    | 48                | 25.0    |     |
| <10              | 27            | 21    | 48                | 43.8    |     |
| **Total**        | 154           | 110   | 264               | 41.7    |     |
| **Allergic dermatoses** |               |       |                   |         |     |
| ≥30              | 83            | 9     | 92                | 9.8     |     |
| 20–29            | 68            | 8     | 76                | 10.5    |     |
| 10–19            | 41            | 7     | 48                | 14.6    |     |
| <10              | 43            | 5     | 48                | 10.4    |     |
| **Total**        | 235           | 29    | 264               | 11.0    |     |
| **Diseases of the skin appendages** |               |       |                   |         |     |
| ≥30              | 79            | 13    | 92                | 14.1    |     |
| 20–29            | 72            | 4     | 76                | 5.3     |     |
| 10–19            | 42            | 6     | 48                | 12.5    |     |
| <10              | 42            | 6     | 48                | 12.5    |     |
| **Total**        | 235           | 29    | 264               | 11.0    |     |
| **Skin tumors**  |               |       |                   |         |     |
| ≥30              | 74            | 18    | 92                | 19.6    |     |
| 20–29            | 56            | 20    | 76                | 26.3    |     |
| 10–19            | 37            | 11    | 48                | 22.9    |     |
| <10              | 35            | 13    | 48                | 27.1    |     |
| **Total**        | 202           | 62    | 264               | 23.5    |     |
| **Neurological and psychogenic dermatoses** |               |       |                   |         |     |
| ≥30              | 61            | 31    | 92                | 33.7    |     |
| 20–29            | 61            | 15    | 76                | 19.7    |     |
| 10–19            | 39            | 9     | 48                | 18.8    |     |
| <10              | 36            | 12    | 48                | 25.0    |     |
| **Total**        | 197           | 67    | 264               | 25.4    |     |
| **Infectious skin diseases** |               |       |                   |         |     |
| ≥30              | 31            | 61    | 92                | 66.3    |     |
| 20–29            | 30            | 46    | 76                | 60.5    |     |
| 10–19            | 18            | 30    | 48                | 62.5    |     |
| <10              | 18            | 30    | 48                | 62.5    |     |
| **Total**        | 97            | 167   | 264               | 63.3    |     |

T2DM: Type 2 diabetes mellitus.
**Supplementary Table 6**: Sex stratified analysis about prevalence difference of “disturbances of pigmentation” in NGT and T2DM groups.

| Group       | Sex | Skin diseases, n (%) | Total | $\chi^2$ | $P_1$ | $\chi^2$ | $P_2$ |
|-------------|-----|----------------------|-------|----------|-------|----------|-------|
|             |     | Normal               | Patients |
| NGT Male    | 40 (52.6) | 36 (47.4) | 76 | 23.42 | <0.0001 | 18.52 | <0.0001 |
| NGT Female  | 75 (87.2) | 11 (12.8) | 86 |  \text{---} |  \text{---} |  \text{---} |  \text{---} |
| Total NGT   | 115 | 47 | 162 |  \text{---} |  \text{---} |  \text{---} |  \text{---} |
| T2DM Male   | 5 (16.7) | 25 (83.3) | 30 | 13.06 | <0.001 |  \text{---} |  \text{---} |
| T2DM Female | 32 (57.1) | 24 (42.9) | 56 |  \text{---} |  \text{---} |  \text{---} |  \text{---} |
| Total T2DM  | 37 | 49 | 86 |  \text{---} |  \text{---} |  \text{---} |  \text{---} |

NGT: Normal glucose tolerance; T2DM: Type 2 diabetes mellitus.