

# Corporate Profile and Our Products

June 2024

**RELTEC** Medical Devices Corporation

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#### 1 Summary

RELTEC Medical Devices Corporation (RELTEC) is a Japanese R&D-oriented medical device manufacturer with over 30 years of corporate history.

RELTEC has been developing a highly unique medical device (RE therapeutic device<sup>1</sup>) with a percutaneous electron supply function for anti-oxidation and negative potential therapeutic function, which shows various physiological actions.

RELTEC manufactures its products in own factory in Japan and ships them to distributors in Japan and overseas.

RELTEC is exhibiting at MEDICAL TAIWAN 2024 to recruit import and sales distributors in the following countries.

- Taiwan
- Asian countries except Malaysia and Singapore

#### \_\_\_\_\_

The information in this material regarding the actions of RE therapeutic devices is based on clinical studies and animal experiment led by RELTEC, and the reproducibility of the studies and experiment is not guaranteed.

RELTEC is not responsible for the results of viewing or using this material.

<sup>&</sup>lt;sup>1</sup> reducing electron therapeutic device

2 Purpose of Exhibiting and Contact Information

# 2 Purpose of Exhibiting and Contact Information

#### 2.1 Our Purpose of Exhibit

- (1) To recruit import and sales distributors for our products in the following countries.
- Taiwan
- Asian countries except Malaysia and Singapore

(2) To seek a partner for clinical development, marketing and sales of RE therapeutic devices for glucose metabolism, lipid metabolism, etc. in Taiwan and other Asian countries.

RE therapeutic devices have shown excellent outcomes for these in clinical studies to date (described later in this material).

#### 2.2 Our Contact Information

English/Japanese language

Chinese language

Advisor



**reitec** RELTEC Medical Devices Corporation

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#### 3 About RELTEC

#### 3.1 Basic Information

Corporate name	RELTEC Medical Devices Corporation		
Business	Development, manufacturing and sales of medical devices, healthcare devices and home appliances		
Establishment date	December 10, 1993		
Head office location	3795-1, Kawatsu-cho, Sakaide-shi, Kagawa, 762-0025, JAPAN		
Capital	JPY 98 million		
Representative	Toyoji Shimada (Representative director/CEO)		
Number of employees	23		
URL	https://reltec.co.jp		

#### 3.2 History and Future

RELTEC was established in 1993 by its founder, PhD Noboru Horiguchi, as an R&D-oriented medical device manufacturer. RELTEC's main product, a highly unique medical device for medical professionals (a negative electric potential therapeutic device with the function of supplying electrons to the human body), have been well received by clients and has grown steadily. RELTEC has previously posted sales of approximately JPY 1.9 billion and operating income of approximately JPY 250 million.

RELTEC's medical devices were generally purchased by customers suffering from intractable diseases for which the standard of care was unsatisfactory for complementary and alternative medicine, and used for home treatment under the direction of a doctor.

On the other hand, the founders wanted to advance clinical development for various diseases that clients were actually suffering from, to obtain indications for those diseases, and thereby to position RELTEC's medical devices as part of the standard of care. The reason is that the indications for RELTEC medical devices currently approved in Japan are relief of headaches, stiff shoulders, insomnia, and chronic constipation, but these indications are often not the same as the disease the clients desire to treat. The founder also believed that the action of RELTEC's medical devices was well suited for maintaining and promoting health, i.e., for healthcare.

As described above, the founder, who wanted to promote RELTEC's medical devices in the fields of standard of care and healthcare, proceeded with business expansion, including clinical development and overseas expansion, using loans as the main source of funds. However, due to a lack of funds, none of them succeeded, and RELTEC's debt reached approximately JPY 6.5 billion, making it difficult for RELTEC to continue its business.

RELTEC has legally liquidated a large amount of debt. However, sales have declined sharply due to reputations of the debt liquidation, and with the addition of the COVID-19 pandemic to this, RELTEC's financial performance has been slumping in recent years.

RELTEC has conducted 4 clinical studies (metabolic syndrome1, HIV infection/AIDS2, lactic acid metabolism3, and chronic hepatitis C4) using its medical devices, and all have shown excellent outcomes. RELTEC will make maximum use of the outcomes of these clinical studies in the future, and commercialize medical devices for household and healthcare devices by utilizing its expertise in the development and manufacture of medical devices for medical professionals. Through these, RELTEC will position its products as a means of standard of care and a means of healthcare, as the founders aspired.

#### 3.3 Strengths and Weaknesses

#### 3.3.1 Strengths

(1) Huge potential market estimated from the outcome of clinical study and animal experiment conducted to date (the clinical study and the animal experiment are described below in this material).

- (2) Highly unique products with no competition
- (3) Technologies protected by tacit knowledge
- (4) Reliable products and stable product quality based on more than 30 years of business experience

#### 3.3.2 Weaknesses

- (1) Small size of corporation which is difficult to fit into the huge potential market
- (2) Poor financial resource
- (3) Poor human network, especially outside Japan

<sup>&</sup>lt;sup>1</sup> Research Society of Electron Immunotherapy. 2022; 8(1): 20-9. An outline of this clinical study is included later in this material.

<sup>&</sup>lt;sup>2</sup> Antibiotics & Chemotherapy. 2008; 24(10): 93-103.

<sup>&</sup>lt;sup>3</sup> This clinical study has been submitted to and will be published in a medical journal.

<sup>&</sup>lt;sup>4</sup> Unpublished

#### 3.4 Growth Potential in the Market and Their Backgrounds

RELTEC's current primary market is complementary and alternative medicine. In the future, RELTEC expects significant growth in the following markets.

(1) Healthcare

As described later, the actions of RE therapeutic device are to ease the influences of stress on the body due to lifestyle, aging, and genetic predisposition. In other words, it is healthcare itself.

RELTEC has shipped more than 24,000 RE therapeutic devices over the past 30 years with no health hazard. This shows the high safety and quality of RE therapeutic device.

As described above, RE therapeutic device has actions suitable for healthcare, and the safety and quality are backed up by the shipment record.

(2) Standard of care

In the clinical studies conducted to date (this material contains a summary of the study on metabolic syndrome among those clinical studies). RE therapeutic device had statistically significantly improved many indicators, including multiple glucose-related indicators such as insulin resistance and HbA1c, multiple oxidative stress-related indicators, and adiponectin etc.

The markets for the standard of care for any of the diseases to which these indicators relate are huge. Therefore, RELTEC thinks that it can earn huge profits by conducting clinical trials of RE therapeutic devices compliant with GCP standard and getting approval for the diseases to which these indicators relate.

### 4 Outline of RE Therapeutic Device

#### 4.1 What is RE Therapeutic Device?

(1) A device that continuously supplies the human body with massive amounts of electrons percutaneously for anti-oxidation

(2) There are 2 types of RE therapeutic device: medical device for medical professionals (3 modes) and non-medical device (2 models) in Japan. RELTEC manufactures them in own factory in Japan and ships them to Japan and other countries including Taiwan. In Taiwan, 2 models of the medical device for medical professionals can be available.

(3) The medical device for medical professionals has a negative potential therapeutic function in addition to the electron supply function.

#### 4.2 RE Therapeutic Devices Available in Taiwan



#### (1) RELTEC MD21

The flagship model of RE therapeutic device with 2 output channels

In Japan, it is mainly used in the supine position as the home therapeutic device for complementary and alternative medicine by chronic disease patients who are unsatisfied with the standard of care.

#### (2) RELTEC MsD

A small, lightweight RE therapeutic device with one output channel, more portable than the MD21, and less physically restraining during therapy.

In Japan, it is often used in a sitting position while working at a desk, etc., to complement MD21 and for healthcare purpose.

# 5 Actions of RE Therapeutic Device

#### 5.1 Overview of the Actions of RE Therapeutic Device

The actions of RE therapeutic device are diverse. All of these actions are characterized by bringing pathological physiological changes caused by stress due to aging, lifestyle, and genetic predisposition closer to the normal range.

Another feature of RE therapeutic device's action is that it does not overcorrect for conditions that deviate from the normal range. For example, RE therapeutic device increases NK cell activity to the normal range, but not beyond the normal range (see "5.6 Increasing NK cell activity"). Therefore, the safety of RE therapeutic device is high.

Based on the above, RELTEC thinks that RE therapeutic device has great potential in the healthcare market and in the market of standard of care where there are no effective and safe therapeutic options.

#### 5.2 Relaxation of Central Nervous System Excitement<sup>1</sup>



RE therapeutic device relaxes the central nervous system.

hen RE therapeutic device was used on 10 healthy adult women (mean age  $37.4 \pm 5.3$ ) for 15 minutes (RE therapy<sup>2</sup> was performed), the following changes were observed.

<sup>&</sup>lt;sup>1</sup> Journal of The National Society of Minus-ion Therapeutic Medicine. 2002; 4(1): 82-6.

<sup>&</sup>lt;sup>2</sup> reducing electron therapy. Therapy/treatment using RE therapeutic device

The appearance ratio of  $\beta$  waves was decreased significantly and that of  $\alpha 2$  waves was increased significantly.  $\beta$  waves tend to occur when the subject is stressed, and  $\alpha 2$  waves tend to occur when the subject is relaxed.

Blood MHPG level decreased. MHPG is the major metabolite of noradrenaline in the brain and is released into the blood. Therefore, the blood MHPG level is the most recent indicator of sympathetic nervous system activity.

#### 5.3 Restoration of Autonomic Nervous Balance<sup>1</sup>



RE therapy restores autonomic nervous system balance by suppressing sympathetic hyperactivity.

After 15 minutes of RE therapy in 8 healthy adult males (mean age 28.0), blood noradrenaline levels decreased.

Noradrenaline is a sympathetic neurotransmitter, and this result indicates that RE therapy suppresses the sympathetic nerves.

<sup>&</sup>lt;sup>1</sup> Journal of The National Society of Minus-ion Therapeutic Medicine. 1997; 1(2): 39-47.

#### 5.4 Restoration of Hormone Balance<sup>1</sup>



RE therapeutic device restores hormonal balance by alleviating the effects of stress.

Blood cortisol levels decreased in 12 healthy adult males (mean age  $45.5 \pm 5.5$ ) after 15 minutes of RE therapy.

Cortisol is one of the stress hormones that increase in secretion under stress.

From the above, it can be shown that RE therapy alleviates the effects of stress and restores hormonal balance.

<sup>&</sup>lt;sup>1</sup> Journal of The National Society of Minus-ion Therapeutic Medicine. 1998; 2(1): 47-54.

#### 5.5 Restoration of Immune Balance<sup>1</sup>



RE therapeutic device restores immune balance.

After 15 minutes of RE therapy in 8 healthy adult males (mean age 28.0), the granulocyte ratio decreased and the lymphocyte ratio increased.

As stress increases, the ratio of granulocytes, which are dominated by neutrophils, increases while the ratio of lymphocytes decreases due to the effects of stress on the autonomic nervous system and the hormonal system.

RE therapy appears to have alleviated the effects of stress and restored immune balance by decreasing the granulocyte ratio and increasing the lymphocyte ratio.

<sup>&</sup>lt;sup>1</sup> Journal of The National Society of Minus-ion Therapeutic Medicine. 1997; 1(2): 39-47.

#### 5.6 Increasing NK cell activity<sup>1</sup>



RE therapeutic device increases NK cell activity.

12 men with normal NK cell activity (mean age  $45.5 \pm 5.5$ , NK cell activity range 18%-40%, mean NK cell activity  $28.6 \pm 6.6\%$ ) and 12 men with low NK cell activity (mean age  $43.6 \pm 7.2$  range of NK cell activity <18%, mean NK cell activity  $12.4 \pm 3.1\%$ ) were treated with 2 weeks of RE therapy.

2 weeks of RE therapy increased NK cell activity in both groups. In the group with normal NK cell activity, the activity increased but did not exceed the normal range. On the other hand, NK cell activity in the low NK cell activity group increased to the normal range with statistical significance.

The above result indicates that RE therapy has the effect of increasing NK cell activity, and that this effect is stronger the lower the NK cell activity is.

<sup>&</sup>lt;sup>1</sup> Journal of The National Society of Minus-ion Therapeutic Medicine. 1998; 2(1): 47-54.

#### 5.7 Improved Blood Circulation



#### 5.7.1 Peripheral circulation<sup>1</sup>

RE therapeutic devices improve peripheral circulation.

Blood flow in the lower leg (lateral gastrocnemius muscle) was measured in 40 healthy subjects (20 males and 20 females, mean age  $26.4 \pm 3.2$ ).

15 minutes of RE therapy increased blood flow at the observed area.

This indicates that RE therapy improves peripheral circulation.

#### 5.7.2 Microcirculation<sup>2</sup>



RE therapeutic device increased skin surface temperature.

10 minutes of RE therapy increased the skin surface temperature of two healthy women.

The effect of RE therapy on increasing skin surface temperature is thought to indicate the possibility of improving microcirculation.

<sup>&</sup>lt;sup>1</sup> Journal of The National Society of Minus-ion Therapeutic Medicine. 1997; 1(2): 25-6.

<sup>&</sup>lt;sup>2</sup> In-house exam

#### 5 Actions of RE Therapeutic Device

### 5.8 Antioxidation and Antiacidification

See "6.12 Oxidative Stress Markers" and "7.6 Oxidation and Acidification Status at 30 Weeks Old"

#### 5.9 Improved Metabolism

#### 5.9.1 Glucose Metabolism

See "6.8 Plasma Glucose and HbA1c"

#### 5.9.2 Lipid Metabolism

See "6.10 Lipid Metabolism"

#### 5.9.3 Energy and Lactic Acid Metabolism

See "7.4 BMR and Survival Days" and "7.6 Oxidation and Acidification Status at 30 Weeks Old"

## 5.10 Suppression of Inflammation<sup>1</sup>



The ability to generate radicals is an indicator of micro-systemic inflammation.

5 days of RE therapy (mean number of treatments per day: 6.1, mean treatment time per treatment: 17 min.) reduced the ability to generate radicals

in all 6 subjects, and the difference between the mean values before and after the treatment was statistically significant (P < 0.01).

This suggests that RE therapy is effective in suppressing inflammation.

<sup>&</sup>lt;sup>1</sup> In-house exam

# 6 Outcome of Clinical Study on Metabolic Syndrome<sup>1</sup>

#### 6.1 Implications of This Study

In this study, patients with metabolic syndrome were randomly divided into two groups, and one group (group SC) received standard of care and the other group (group RE) received standard of care and RE therapy for 8 weeks, respectively. Measurements of 19 predetermined endpoints related to metabolic syndrome pathology in both groups were then compared. The results showed that group RE was statistically significantly superior to group SC in all 19 endpoints.

It is no exaggeration to say that metabolic syndrome is the biggest risk to healthy longevity in developed countries. On the other hand, because the factors associated with metabolic syndrome are diverse, it is impossible to control them all with the standard of care.

The multiple effects of RE therapy suggested by the outcomes of this study suggest that RE therapy has high potential as an unprecedented intervention method for metabolic syndrome.

<sup>&</sup>lt;sup>1</sup> Research Society of Electron Immunotherapy. 2022; 8(1): 20-9.

#### 6.2 Study Design

Study investigator	Kexue Zeng	Clinical study design
Study implementation organization	Guangdong second hospital of traditional Chinese medicine	Study group and
Target disease	Metabolic syndrome (MS)	
Subject selection criteria	IDF (2005)	
Required	WC* ≥ 94 cm in men or ≥ 80 cm in women	Treatment period
No. of abnormalities	≥ 2 of;	
Tryglycerides	≥ 150 mg/dL	
HDL cholesterol	< 40 mg/dL in men or < 50 mg/dL in women	
Blood pressure	≥ 130/85 mmHg	
Glucose	≥ 100 mg/dL	
* Waist circumstance		

Clinical study design	Randomized group comparative study
Study group and Therapeutic intervention	Group SC Standard of care only
	Group RE Standard of care and RE therapy
Treatment period	8 weeks

# 6.3 Background of Subjects

Subject g	roup	Group SC	Group RE
Number of s [male/fem	ubjects nale]	40 [27/13]	40 [30/10]
Age	Mean ± SD	56.24 ± 3.16	56.36 ± 3.11
	(min.–max.)	(45–75)	(45–75)
Disease period	Mean ± SD	7.25 ± 1.02	7.21 ± 0.98
(months)	(minmax.)	(1–20)	(1–22)
BMI (kg/m²)	Mean ± SD	27.35 ± 0.96	27.29 ± 1.04
	(min.–max.)	(25.0–29.5)	(25.4–29.0)

There was no statistically significant difference in subject background between the two groups (P > 0.05).



#### 6.4 Obesity

After 8 weeks of treatment, waist circumference and BMI in group RE were statistically significantly lower than in group SC.

In both groups RE and SC, post-treatment waist circumference and BMI were statistically significantly better than before treatment. Furthermore, for all of the following evaluation indicators, the post-treatment values for both groups RE and SC were statistically significantly better than before treatment, but these are not reflected in the figures.



#### Adiponectin 6.5

than those in group SC.

Adiponectin is one of the adipokines, a physiologically active substance secreted by adipocytes, and is a good factor that improves insulin resistance. However, metabolic syndrome decreases the secretion of adiponectin.

After 4 and 8 weeks of treatment, blood adiponectin levels in group RE were statistically significantly higher

#### 6.6 Insulin



After 8 weeks of treatment, fasting insulin and 2-hour postprandial insulin levels in group RE were statistically significantly lower than those in group SC.

This suggests that by adding RE therapy to the standard of care, the amount of insulin required for blood sugar control can be reduced, both in the fasting state and after meals.

#### 6.7 Insulin Secretory Reserve and Insulin Resistance



After 8 weeks of treatment, HOMA- $\beta$  in group RE was statistically significantly higher than that in group SC, and HOMA-IR was statistically significantly lower than in that group SC.

HOMA- $\beta$  is an index of residual insulin secretory capacity, and HOMA-IR is an index of insulin resistance.

The above suggests that the addition of RE therapy to the standard of care can increase insulin secretory capacity while decreasing insulin resistance. In particular, HOMA-IR in group RE was 59% of that in group SC after 8 weeks of treatment, suggesting that RE therapy has a high effect on improving insulin resistance.

Because there are limited therapeutic interventions that can safely and significantly improve insulin resistance, RE therapy is considered to be a promising means of improving insulin resistance.

#### 6.8 Plasma Glucose and HbA1c



After 8 weeks of treatment, fasting plasma glucose, 2-hour postprandial glucose, and HbA1c values in group RE were statistically significantly lower than those in group SC. HbA1c is a glycohemoglobin, is the average blood glucose level over the past 1-2 months.

The above suggests that the addition of RE therapy to the standard of care can reduce blood glucose levels.

Furthermore, the above and the fact that fasting insulin and 2-hour postprandial insulin levels in group RE were statistically significantly lower than those in group SC (see "6.6 Insulin") suggest that the hypoglycemic effect of RE therapy is mainly due to a decrease in insulin resistance.



#### 6.9 Blood Pressure

After 8 weeks of treatment, systolic blood pressure and diastolic blood pressure in group RE were statistically significantly lower than those in group SC.

Hypertension, like hyperglycemia, is one of the diagnostic criteria for metabolic syndrome and a risk factor for atherosclerosis.



#### 6.10 Lipid Metabolism

After 8 weeks of treatment, triglyceride and total cholesterol values in group RE were statistically significantly lower than those in group SC, and HDL cholesterol value in group RE was statistically significantly higher than that in group SC.

High triglycerides and low HDL cholesterol, like hypertension and hyperglycemia, are diagnostic criteria for metabolic syndrome and risk factors for atherosclerosis.

The addition of RE therapy to the standard of care statistically significantly improved all of the diagnostic criteria for metabolic syndrome and risk factors for atherosclerosis, such as dyslipidemia (this

section), hyperglycemia (see "6.8 Plasma Glucose and HbA1c"), and hypertension (see "6.9 Blood Pressure"). The above suggests that RE therapy is expected to be highly useful for healthy longevity.



#### 6.11 Urinary Albumin/Creatinine Ratio

Metabolic syndrome is one of the risk factors for proteinuria and renal dysfunction, and UACR is one of the indicators of proteinuria. Proteinuria is one of the factors that inhibit healthy longevity in developed countries.

After 8 weeks of treatment, UACR in group RE was statistically significantly lower than that in group SC.

#### 6.12 Oxidative Stress Markers



Oxidative stress is deeply involved in the pathogenesis of metabolic syndrome, and like metabolic syndrome, oxidative stress is known to be one of the risk factors for atherosclerosis.

After 8 weeks of treatment, the ROS and malondialdehyde levels in group RE were statistically significantly lower than those in group SC, and the SOD level in group RE was higher than that in group SC.

These mean that the addition of RE therapy to the standard of care decreased ROS values causing oxidative stress, increased SOD values of antioxidant enzymes, and decreased malondialdehyde values, an indicator of lipid peroxides among oxidized substances.

Lipid peroxidation is one of the risk factors for atherosclerosis, and oxidative stress itself is said to be the greatest cause of aging and one of the causes of various diseases. Therefore, it is highly significant to add RE therapy to the standard of care.

# 7 Outcome of Animal Experiment on Energy Metabolism and Longevity<sup>1</sup>

#### 7.1 Implications of This Experiment

Aerobic energy metabolism is the largest source of ROS in animals, and human beings are no exception.

ROS generated in mitochondria during the process of aerobic energy metabolism is thought to not only inhibit energy metabolism by degrading mitochondria but also accelerate aging and inhibit healthy longevity.

To be oxidized means to have electrons taken away. RELTEC verified the hypothesis that the antioxidant effects associated with an electron-rich living environment improve energy metabolism and promote longevity through animal experiments.

The results showed that nude mice bred in an electron-rich environment (group ER) had a statistically significantly higher basal metabolic rate (BMR) and longer survival days than nude mice bred in a normal environment (group NM).

Based on the outcome of this experiment, RELTEC believed that RE therapeutic device, which delivers a large amount of electrons percutaneously to the human body for antioxidant purposes, may be useful for healthy longevity.

#### 7.2 Outline of This Experiment

Nucle mice were divided into two groups, one group was bred in an electronic-rich breeding environment (group ER, N = 5) and the other group was bred in a normal breeding environment (group NM, N = 5), and the following endpoints were used. The observation results of both groups were compared.

(1) BMR, (2) survival days, (3) appearance immediately before death, (4) oxidation-reduction potential (redox potential) of blood and erythrocyte contents, (5) blood lactic acid level, (6) blood pH and intrarectal pH

<sup>&</sup>lt;sup>1</sup> Journal of The National Society of Minus-ion Therapeutic Medicine. 2002; 5(1): 45-55.

7 Outcome of Animal Experiment on Energy Metabolism and Longevity

#### 7.3 Apparatus for Breeding Nude Mouse in Group ER



Group ER's nude mouse breeding equipment is shown on the left.

In Group NM's nude mouse breeding environment, the RE therapeutic device and negative ion generator have been removed from the diagram on the left.

#### 7.4 BMR and Survival Days



After 14 weeks, the BMR of group ER was statistically significantly higher than that of group NM.

Survival days were  $437.2 \pm 17.3$  days in group ER and  $368.0 \pm 18.3$  days in group NM, showing a statistically significant difference between the 2 groups.

The above results indicate that an electron-rich breeding environment improves energy metabolism and extends survival days in nude mice.

#### 7.5 Photograph of a Nude Mouse Immediately Before Death



Based on the appearance immediately before death, the cause of death in group ER was considered to be old age. On the other hand, most individuals in group NM had edema and arthritis from the thighs to the abdomen.

These results suggest that the electron-rich breeding environment reduced aging and onset of disease, and extended the survival days.

#### 7.6 Oxidation and Acidification Status at 30 Weeks Old



The redox potential of blood and erythrocyte contents and blood lactic acid level in group ER were statistically significantly lower than those in group NM, and blood pH and intrarectal pH were statistically significantly higher than those in group NM. Lactic acid is an acidic substance produced during anaerobic energy metabolism.

These results suggest that the electron-rich breeding environment inhibited oxidation and promoted aerobic energy metabolism.

#### 8 Conclusion

RELTEC's RE therapeutic device is a device that continuously supplies the human body with massive amounts of electrons percutaneously for anti-oxidation RE therapeutic device is a device that continuously supplies the human body with massive amounts of electrons percutaneously for anti-oxidation. In addition, RE therapeutic device has a high safety.

RE therapeutic device has diverse and comprehensive effects to alleviate pathological physiological changes caused by stress due to aging, lifestyle, genetic predisposition, and other factors. This is also suggested by clinical study on metabolic syndrome and animal experiment on energy metabolism and survival days.

In conclusion, RE therapeutic device is considered to be suitable for healthcare for healthy longevity and for standard of care, where there is a lack of medical intervention methods that are both highly effective and safe.