VOLUME 12 NUMBER 7 JULY/AUGUST 1989

DIABETES CARE®

THE JOURNAL OF CLINICAL AND APPLIED RESEARCH AND EDUCATION

American Diabetes Association®, Inc.

ISSN 0149-5992

A JOURNAL OF THE AMERICAN DIABETES ASSOCIATION

In non-insulin-dependent diabetes...

BREAKFAST-TO-BREAKFAST CONTROL...*One dose a day.*

Upjohn

24-hour glycemic control can begin at the breakfast table.

When diet and exercise aren't enough, once-a-day MICRONASE provides 24-hour control of both postprandial and fasting blood glucose levels. The usual starting dosage, 2.5 mg to 5 mg once a day, should be taken with breakfast or the first main meal of the day. Some patients, particularly those receiving more than 10 mg daily, may have a more satisfactory response with twice-a-day dosage.

All sulfonylureas, including MICRONASE, can cause severe hypoglycemia. Proper patient selection, dosage, and instructions are important.

Micronase®

Tablets (glyburide) **Usual starting dosage 2.5 mg-5 mg once a day**

Please see adjacent page for brief summary of prescribing information.

JULY/AUGUST AUTHOR INDEX

Volume 12, Number 7

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DIABETES CARE®

THE JOURNAL OF CLINICAL AND APPLIED RESEARCH AND EDUCATION

Diabetes Care and *Diabetes* are scientific research journals published by the American Diabetes Association, Inc. Both publish original high-quality reports on biomedical research related to the broad field of diabetes mellitus.

All manuscripts and other editorial correspondence should be sent by first class mail to David C. Robbins, MD, Editor, *Diabetes Care*, University of Vermont, Department of Medicine, Metabolic Unit, Given C-352, Burlington, VT 05405.

Diabetes Care publishes only original material. When submitting a manuscript, authors must state in their transmittal letter that the material has not been previously published or is not currently being submitted to another journal.

Manuscripts should be prepared in accord with the requirements specified in the document "Uniform Requirements for Manuscripts Submitted to Biomedical Journals," *Annals of Internal Medicine* 96:766–71, 1982. An "Information for Authors" page containing specifications for manuscript preparation appears in the January and June issues of each volume.

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For treatment of diabetes:

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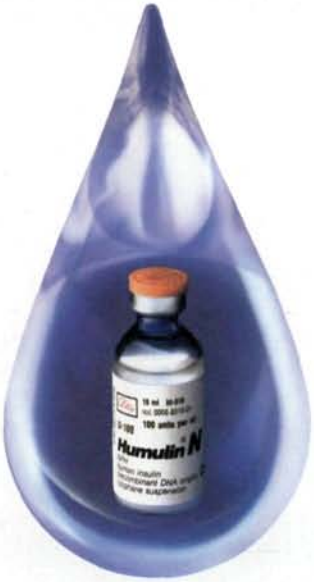
Human Insulin

With Human Insulin



Humulin®
human insulin
(recombinant DNA origin)

Any change of insulin should be made cautiously and only under medical supervision.

Lilly Leadership In Diabetes Care

IN THIS ISSUE

Dawn of a New Age in Therapy?

Some researchers have suggested that the nocturnal release of growth hormone (GH) may play a role in the so-called dawn phenomenon, an early-morning rise in blood glucose often preceded by a period of much lower blood glucose levels. Atiea et al. (p. 443) administered pirenzipine, a drug that inhibits the nocturnal rise in GH secretion via blockade of cholinergic muscarinic receptors, to six insulin-dependent diabetic subjects. In all cases, the nocturnal release of GH was inhibited and the dawn rise in blood glucose was significantly lower than in control experiments. They speculate that this or similar agents may be useful in managing the dawn phenomenon and thereby alter the development of long-term complications.

Impotence: Feeble Blood Flow or Faulty Nerves?

The etiology of impotence in diabetic men is unclear. However, results of a study by Daniels (p. 449) indicate that neuropathic mechanisms may account for this impaired sexual performance. He measured blood flow and bulbocavernosus reflexes in diabetic men with physiologically confirmed impotence, nondiabetic men with psychogenic impotence, and diabetic men with normal sexual function. Frequency of symptomatic peripheral neuropathy, duration of diabetes, serum testosterone concentrations, age, and penile blood flow were no different in impotent and unimpaired diabetic men. However, the bulbocavernosus reflex, a functional measurement of the pudendal nerve, was significantly impaired in the impotent diabetic group, suggesting that neuropathy is largely responsible for impotence in diabetes.

IGT: Assessing Health Risks

Are people with impaired glucose tolerance (IGT) subject to the same health risks as people with diabetes? Harris (p. 464) examined the clinical characteristics of people with IGT. Of nearly 4000 Americans given oral glucose tolerance tests, 11.2% had IGT compared to 6.6% with frank diabetes. Individuals with IGT had a greater risk of developing macrovascular disease, hypertension, and stroke but had no higher rate of diabetes-related conditions except for obesity, suggesting that the health risks associated with IGT are similar to those of obesity. However, because 1–5% of people with IGT progress to frank diabetes each year, efforts at weight reduction in this population might be even more beneficial than similar efforts taken after overt diabetes has developed.

How Sweet It Is

When it comes to sweeteners, taste and taste perception are two important factors for people with diabetes. Fontvieille et al. (p. 481) assessed the sweetening power of fructose and sucrose in various hot and cold liquids. Diabetic subjects found fructose and water solutions to be slightly sweeter than did healthy subjects, but a second experiment in healthy subjects only showed the sweetening power of fructose to vary widely depending on the acidity and temperature of the beverage. Although fructose may have other dietary advantages, there seems to be no clear winner in this sucrose challenge.

If you've been waiting for the last word in non-wipe blood glucose monitoring systems...

wait no more.

Presenting

Ultra

THE ULTIMATE IN ACCURACY, SIMPLICITY AND EASE OF USE

Finally, an advanced concept in blood glucose monitoring that any diabetes patient will feel comfortable with—the first time they hold ULTRA in the palm of their hand.

The revolutionary ULTRA System is simple to operate. Highly accurate. Shirt-pocket portable. And completely non-wipe.

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Only ULTRA offers so many vital features in such a small and practical package.

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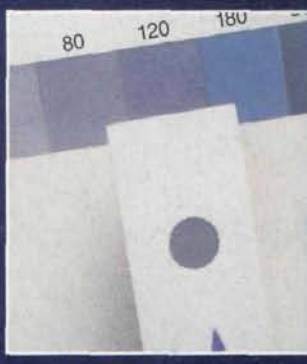
Insert test strip. Turn on power. Apply blood sample. No timing. No wiping. No blotting. Accurate single-touch test results in 45 seconds.



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And, unlike any other non-wipe system, ULTRA is equipped with a reliable visual-read capability that can be used in conjunction with the meter, or by itself—offering an added measure of confidence and flexibility.

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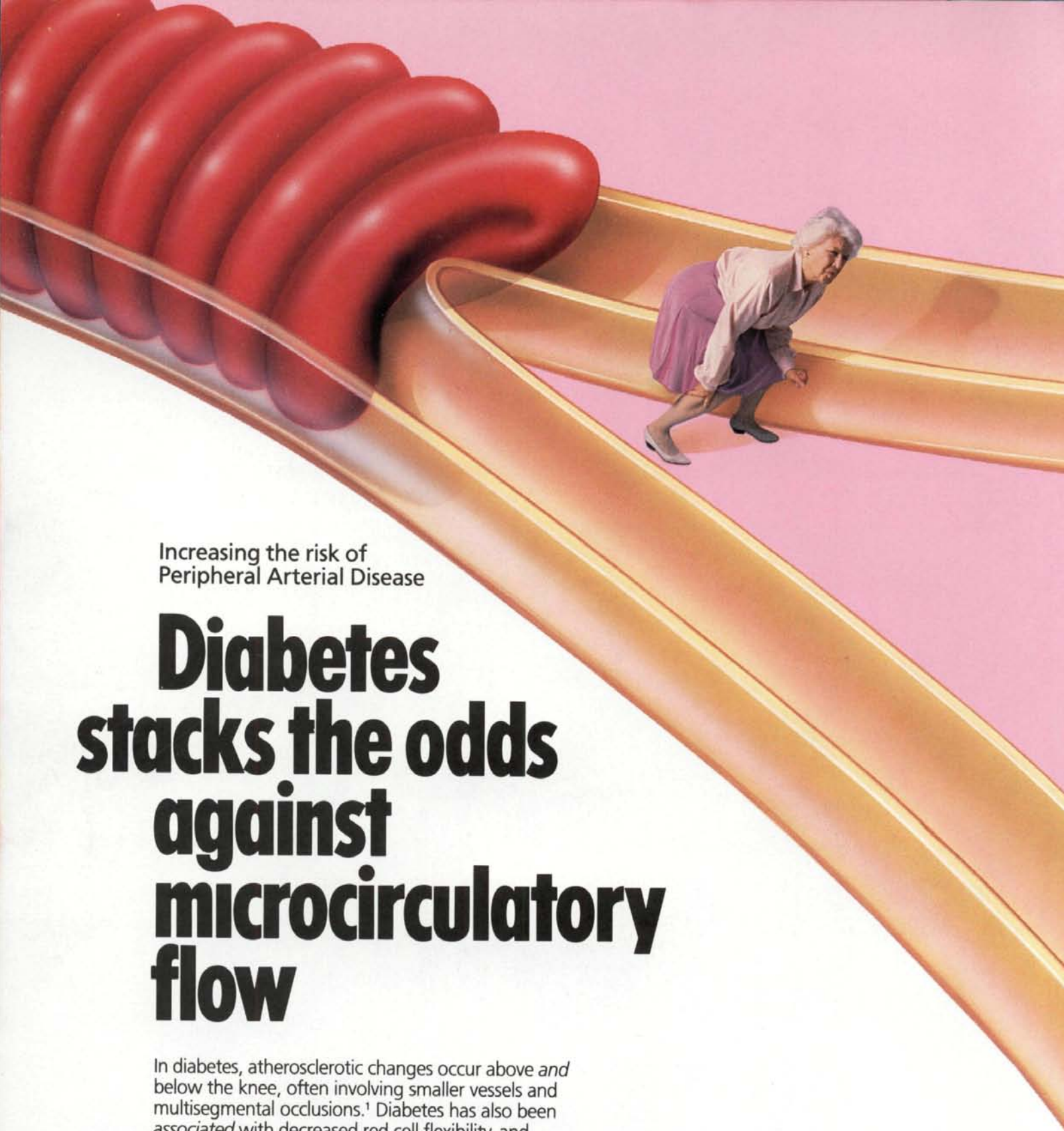
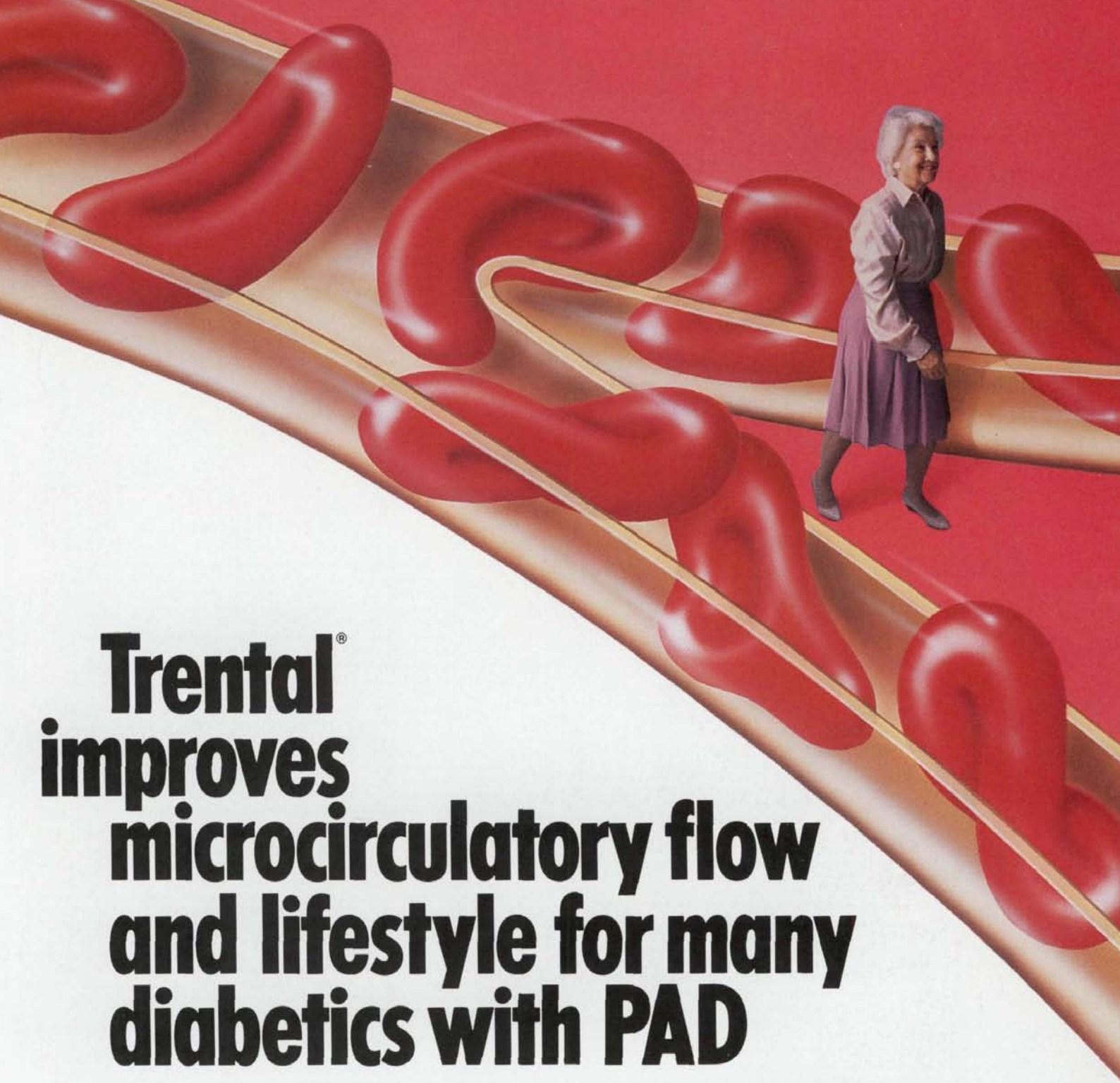


Increasing the risk of
Peripheral Arterial Disease

Diabetes stacks the odds against microcirculatory flow

In diabetes, atherosclerotic changes occur above *and* below the knee, often involving smaller vessels and multisegmental occlusions.[1] Diabetes has also been *associated* with decreased red cell flexibility, and increasing fibrinogen levels, platelet aggregation and platelet adherence, factors which predispose patients to peripheral arterial disease.[1]

Duration of Diabetes	Incidence of PAD
10 years	15%
20 years	45%



Trental® improves microcirculatory flow and lifestyle for many diabetics with PAD

Trental® (pentoxifylline) increases red cell flexibility[2] while decreasing elevated plasma fibrinogen levels,[3] aggregation of platelets[4] and red cells.[5] The resulting increase in microcirculatory flow enhances tissue perfusion and oxygenation.[6]

With Trental, patients experience significant improvement in pain-free walking distance, paresthesia, skin temperature and subjective overall response.[7]

Not a vasodilator • Not an anticoagulant • Not related to aspirin or dipyridamole

Trental® 400 mg Tablets (pentoxifylline)

The only proven-effective agent for intermittent claudication, a symptom of peripheral arterial disease

Please see references and brief summary of prescribing information on following page.

Trental® can improve function and symptoms, but is not intended to replace more definitive therapy, such as surgery.

References:
1. Levin ME, Sicard GA: Evaluating and treating diabetic peripheral vascular disease, Part I. *Clinical Diabetes* May/Jun 1987. **2.** Stormer B, Kleinschmidt K, Loose D, et al: Rheological changes in the blood of patients with chronic arterial occlusive disease after the administration of vasoactive drugs. *Curr Med Res Opin* 1977;4:588-595. **3.** Perego MA, Sergio G, Artale F: Haemorrheological aspects of the pathophysiology and clinical features of peripheral occlusive arterial disease. *Pharmatherapeutica* 1983;3(1):91. **4.** Seiffge D: *IRCS Med Sci* 1980;8:727. **5.** Lowe GDO, Drummond MM, Forbes CD, et al: Blood and plasma viscosity in prediction of venous thrombosis. Abstracts: 77, International Symposium on Filterability and Red Blood Cell Deformability, Göteborg, Sweden, Sep 11-13, 1980. **6.** Ehrly AM: Effects of orally administered pentoxifylline on muscular oxygen pressure in patients with intermittent claudication. *IRCS Med Sci* 1982;10:401. **7.** Schubotz R: Double-blind trial of pentoxifylline in diabetes with peripheral vascular disorders. *Pharmatherapeutica* 1976;1(3):172-179.

Trental® (pentoxifylline) Tablets, 400 mg

A brief summary of the Prescribing Information follows.

INDICATIONS AND USAGE:
Trental® (pentoxifylline) is indicated for the treatment of patients with intermittent claudication on the basis of chronic occlusive arterial disease of the limbs. Trental® (pentoxifylline) can improve function and symptoms but is not intended to replace more definitive therapy, such as surgical bypass, or removal of arterial obstructions when treating peripheral vascular disease.

CONTRAINDICATIONS:
Trental® (pentoxifylline) should not be used in patients who have previously exhibited intolerance to this product or methylxanthines such as caffeine, theophylline, and theobromine.

PRECAUTIONS:
General: Patients with chronic occlusive arterial disease of the limbs frequently show other manifestations of arteriosclerotic disease. Trental® (pentoxifylline) has been used safely for treatment of peripheral arterial disease in patients with concurrent coronary artery and cerebrovascular diseases, but there have been occasional reports of angina, hypotension, and arrhythmia. Controlled trials do not show that Trental® (pentoxifylline) causes such adverse effects more often than placebo, but, as it is a methylxanthine derivative, it is possible some individuals will experience such responses.
Drug Interactions: Although a causal relationship has not been established, there have been reports of bleeding and/or prolonged prothrombin time in patients treated with Trental® (pentoxifylline) with and without anticoagulants or platelet aggregation inhibitors. Patients on warfarin should have more frequent monitoring of prothrombin times, while patients with other risk factors complicated by hemorrhage (e.g., recent surgery, peptic ulceration) should have periodic examinations for bleeding including hematocrit and/or hemoglobin. Trental® (pentoxifylline) has been used concurrently with antihypertensive drugs, beta blockers, digitalis, diuretics, antidiabetic agents, and antiarrhythmics, without observed problems. Small decreases in blood pressure have been observed in some patients treated with Trental® (pentoxifylline); periodic systemic blood pressure monitoring is recommended for patients receiving concomitant antihypertensive therapy. If indicated, dosage of the antihypertensive agents should be reduced.
Carcinogenesis, Mutagenesis and Impairment of Fertility: Long-term studies of the carcinogenic potential of pentoxifylline were conducted in mice and rats by dietary administration of the drug at doses up to approximately 24 times (570 mg/kg) the maximum recommended human daily dose (MRHD) of 24 mg/kg for 18 months in mice and 18 months in rats with an additional 6 months without drug exposure in the latter. No carcinogenic potential for pentoxifylline was noted in the mouse study. In the rat study, there was a statistically significant increase in benign mammary fibroadenomas in females in the high dose group (24 × MRHD). The relevance of this finding to human use is uncertain since this was only a marginal statistically significant increase for a tumor that is common in aged rats. Pentoxifylline was devoid of mutagenic activity in various strains of *Salmonella* (Ames test) when tested in the presence and absence of metabolic activation.
Pregnancy: Category C. Teratogenic studies have been performed in rats and rabbits at oral doses up to about 25 and 10 times the maximum recommended human daily dose (MRHD) of 24 mg/kg, respectively. No evidence of fetal malformation was observed. Increased resorption was seen in rats at 25 times MRHD. There are, however, no adequate and well controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, Trental® (pentoxifylline) should be used during pregnancy only if clearly needed.
Nursing Mothers: Pentoxifylline and its metabolites are excreted in human milk. Because of the potential for tumorigenicity shown for pentoxifylline in rats, a decision should be made whether to discontinue nursing or discontinue the drug, taking into account the importance of the drug to the mother.
Pediatric Use: Safety and effectiveness in children below the age of 18 years have not been established.

ADVERSE REACTIONS:
Clinical trials were conducted using either controlled-release Trental® (pentoxifylline) tablets for up to 60 weeks or immediate-release Trental® (pentoxifylline) capsules for up to 24 weeks. Dosage ranges in the tablet studies were 400 mg bid to tid and in the capsule studies, 200-400 mg tid.
The table summarizes the incidence (in percent) of adverse reactions considered drug related, as well as the numbers of patients who received controlled-release Trental® (pentoxifylline) tablets, immediate-release Trental® (pentoxifylline) capsules, or the corresponding placebos. The incidence of adverse reactions was higher in the capsule studies (where dose related increases were seen in digestive and nervous system side effects) than in the tablet studies. Studies with the capsule include domestic experience, whereas studies with the controlled-release tablets were conducted outside the U.S. The table indicates that in the tablet studies few patients discontinued because of adverse effects.

INCIDENCE (%) OF SIDE EFFECTS

	Controlled-Release Tablets		Immediate-Release Capsules	
	Commercially Available		Used only for Controlled Clinical Trials	
	Trental®	Placebo	Trental®	Placebo
(Numbers of Patients at Risk)	(321)	(128)	(177)	(138)
Discontinued for Side Effect	3.1	0	9.6	7.2
CARDIOVASCULAR SYSTEM				
Angina/Chest Pain	0.3	—	1.1	2.2
Arrhythmia/Palpitation	—	—	1.7	0.7
Flushing	—	—	2.3	0.7
DIGESTIVE SYSTEM				
Abdominal Discomfort	—	—	4.0	1.4
Belching/Flatus/Bloating	0.6	—	9.0	3.6
Diarrhea	—	—	3.4	2.9
Dyspepsia	2.8	4.7	9.6	2.9
Nausea	2.2	0.8	28.8	8.7
Vomiting	1.2	—	4.5	0.7
NERVOUS SYSTEM				
Agitation/Nervousness	—	—	1.7	0.7
Dizziness	1.9	3.1	11.9	4.3
Drowsiness	—	—	1.1	5.8
Headache	1.2	1.6	6.2	5.8
Insomnia	—	—	2.3	2.2
Tremor	0.3	0.8	—	—
Blurred Vision	—	—	2.3	1.4

Trental® (pentoxifylline) has been marketed in Europe and elsewhere since 1972. In addition to the above symptoms, the following have been reported spontaneously since marketing or occurred in other clinical trials with an incidence of less than 1%; the causal relationship was uncertain:
Cardiovascular—dyspnea, edema, hypotension.
Digestive—anorexia, cholecystitis, constipation, dry mouth/thirst.
Nervous—anxiety, confusion.
Respiratory—epistaxis, flu-like symptoms, laryngitis, nasal congestion.
Skin and Appendages—brittle fingernails, pruritus, rash, urticaria, angioedema.
Special Senses—blurred vision, conjunctivitis, earache, scotoma.
Miscellaneous—bad taste, excessive salivation, leukopenia, malaise, sore throat/swollen neck glands, weight change.
A few rare events have been reported spontaneously worldwide since marketing in 1972. Although they occurred under circumstances in which a causal relationship with pentoxifylline could not be established, they are listed to serve as information for physicians: Cardiovascular—angina, arrhythmia, tachycardia; Digestive—hepatitis, jaundice, increased liver enzymes; and Hemic and Lymphatic—decreased serum fibrinogen, pancytopenia, aplastic anemia, purpura, thrombocytopenia.

OVERDOSAGE:
Overdosage with Trental® (pentoxifylline) has been reported in children and adults. Symptoms appear to be dose related. A report from a poison control center on 44 patients taking overdoses of enteric-coated pentoxifylline tablets noted that symptoms usually occurred 4-5 hours after ingestion and lasted about 12 hours. The highest amount ingested was 80 mg/kg; flushing, hypotension, convulsions, somnolence, loss of consciousness, fever, and agitation occurred. All patients recovered.
In addition to symptomatic treatment and gastric lavage, special attention must be given to supporting respiration, maintaining systemic blood pressure, and controlling convulsions. Activated charcoal has been used to adsorb pentoxifylline in patients who have overdosed.

DOSAGE AND ADMINISTRATION:
The usual dosage of Trental® (pentoxifylline) in controlled-release tablet form is one tablet (400 mg) three times a day with meals.
While the effect of Trental® (pentoxifylline) may be seen within 2 to 4 weeks, it is recommended that treatment be continued for at least 8 weeks. Efficacy has been demonstrated in double-blind clinical studies of 6 months duration.
Digestive and central nervous system side effects are dose related. If patients develop these side effects it is recommended that the dosage be lowered to one tablet twice a day (800 mg/day). If side effects persist at this lower dosage, the administration of Trental® (pentoxifylline) should be discontinued. Edition 2/88
Trental® REG TM HOECHST AG

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Help your patients take a step toward early detection and treatment of P.A.D....

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Trental® 400 mg Tablets
(pentoxifylline)

The only proven-effective agent for intermittent claudication, a symptom of peripheral arterial disease

Q73174-1088

I can do my alphabet, my numbers, and my blood sugar.

And if I can do my blood sugar, so can your patients.

Little Matthew is only three years old and mighty proud. Not only does he know the alphabet and how to count, he also knows how to check his blood glucose level.

When it comes to blood glucose testing, the ExacTech® System makes learning easy for patients of any age. Even Matthew has mastered the simple one-button, three-step procedure. And because the ExacTech System gives results in 30 seconds and does not require blotting or wiping, Matthew can focus on what he really likes to do. Like playing ball. Or riding his scooter.

The ExacTech sensor is so small and discrete that it goes where Matthew goes . . . and so convenient to use that Matthew doesn't mind checking his blood glucose level frequently. Matthew's doctor explained to Matthew and his parents how frequent checking can help them manage diabetes more effectively.

MediSense is so sure that the convenience of the ExacTech Blood Glucose System will encourage better compliance, that we will refund the full purchase price of the sensor to anyone whose glycosylated hemoglobin is brought down to the normal range*—or maintained in the normal range*—after a six-month period from the date of purchase. For complete details, write to MediSense, Communications Department, or call 1-800-527-3339.

ExacTech®

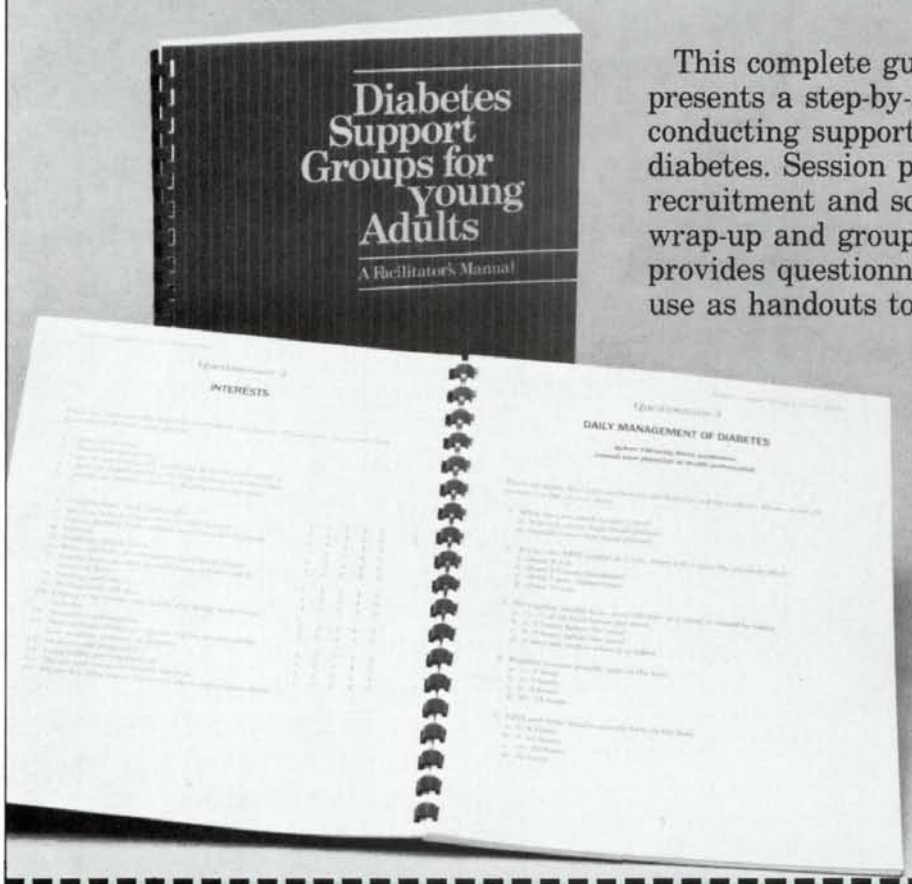
Blood Glucose System

Uncomplicate blood glucose testing with the ExacTech® System.

MediSense, Inc.
128 Sidney Street, Cambridge, MA 02139

*Interpretation of normal range depends on specific test used and patient type. Physician verification necessary.

Lead a diabetes support group with the newest resource from the American Diabetes Association.



This complete guide for health-care professionals presents a step-by-step approach to planning and conducting support groups for young adults with type I diabetes. Session plans cover everything from recruitment and screening of participants to the final wrap-up and group evaluation. This manual also provides questionnaires, exercises, and fact sheets for use as handouts to participants.

The following topics are covered:

- Managing Sick Days
- Insulin and Insulin Injection Techniques
- Sexuality and Pregnancy
- Aerobic Exercise
- Managing Stress
- Insulin Reactions
- Psychological Issues
- Complications
- New Developments
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- Employment Discrimination and Other Legal Issues

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For a limited time only, receive ADA's new publication for only $12.95, $5.00 OFF the Regular Nonmember Price of $17.95!

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TOTAL (VA residents add 4.5% state sales tax) $ _____

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Make your check or money order payable to: American Diabetes Association. *Mail to:* American Diabetes Association, 1970 Chain Bridge Road, McLean, VA 22109-0592.

Payment must be in U.S. funds and be drawn on a U.S. bank.

Shipping and handling are included for orders to the North American continent. Contact the ADA for foreign price list for shipping charges to other destinations.

Please allow 6-8 weeks for delivery.

American Diabetes Association.

HURRY! Special price offer expires October 31, 1989!

J302A

Now little Matthew* has freedom of choice... Introducing the New ExacTech® Companion

Actual Size

The same speed, simplicity, and convenience of the original ExacTech Blood Glucose Sensor

Actual Size

Two models, one technology

Life can now be a little easier with the choice between two different models of the ExacTech® Blood Glucose System—the original pen-sized sensor and the new, credit-card-sized sensor, the ExacTech® Companion. Both models are light, small, and use the *same* ExacTech strip.

No blotting, no wiping... results in 30 seconds

The original ExacTech and the new ExacTech Companion require no blotting, no wiping... nothing is more convenient. No blood glucose meter is faster—both models give results in 30 seconds. And, the procedure is so simple—one button, three-step operation—that frequent blood glucose testing fits easily into the diabetic's life-style.

MediSense, Inc.
128 Sidney Street, Cambridge, MA 02139

*In case you missed it, little Matthew is on the previous page.

ExacTech®
Blood Glucose System

Uncomplicate blood glucose testing with the ExacTech® System.

Get ADA's nutrition publications for your patients at a great savings!

Save $5 to more than $700 when you buy bulk copies of these essential patient publications!

Exchange Lists For Meal Planning

Here's the preferred system for diabetes meal planning. Colorful charts, helpful tips on good nutrition, and the six easy-to-use food exchange lists show your patients how to balance their diets to help control their diabetes.

Regular or Large-Print Versions.

Healthy Food Choices

This pamphlet contains the basics of good nutrition and meal planning. Designed as an introduction to the Exchange Lists or a stand-alone product, this mini-poster is a "beginner's level" meal planning tool.

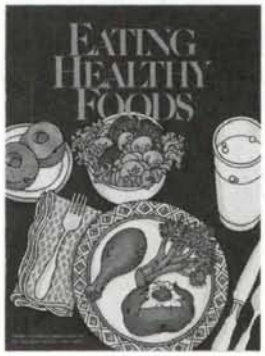
English or Spanish Versions.

Exchange Lists For Weight Management

It's the perfect book for any of your patients who want to get their weight under control. Help your patients learn the basics of good nutrition and set goals for a good weight management program.

Eating Healthy Foods

Developed for people with limited reading skills, this colorfully illustrated booklet provides daily meal choices using the Exchange Lists. It's also perfect for patients needing a simplified guide to meal planning.



Nutrition Pamphlets

This series of pamphlets for your patients answers the most commonly asked questions about healthy eating. Each pamphlet contains dietary goals and tips.

- A Word About Obesity #220B
- A Word About Nutrition #228B
- Nutrition and Insulin-Dependent Diabetes #229B
- Nutrition and Non-Insulin-Dependent Diabetes #230B
- Nutrition For Children With Diabetes #231B

Each title: $6.95 for 25 copies.

Bulk Prices

	25	50	100	250	500
Exchange Lists For Meal Planning					
Regular	$31.10	$ 62.15	$119.00	$269.00	$547.00
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English	$ 7.05	$ 13.40	$ 23.70	$ 53.70	$ 96.75
Spanish	$ 7.55	$ 14.40	$ 25.70	$ 58.70	$106.75
Exchange Lists For Weight Management	$31.10	$ 62.15	$119.00	$269.00	$547.00

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Call 1-800-ADA-DISC ext. 355 for bulk prices on ADA's other patient publications!

In Diabetes–

Control Means Quality of Life

Poor control of blood glucose has been associated with complications and malaise that detract from the quality of life. While this is true for all diabetics, it seems to often be forgotten when managing NIDDM.

Random blood glucose testing often does not provide significant new information to detect possible physical damage caused by poor control.

A periodic glycated hemoglobin assay, however, provides you with a retrospective view of average blood glucose levels over the previous four to eight weeks. With that information, you can modify or change the treatment and reinforce adherence to diet and exercise.

Glycated hemoglobin values are something both you and your patients can understand.

Glyc-Affin GHb—
The True Value Affinity Assay

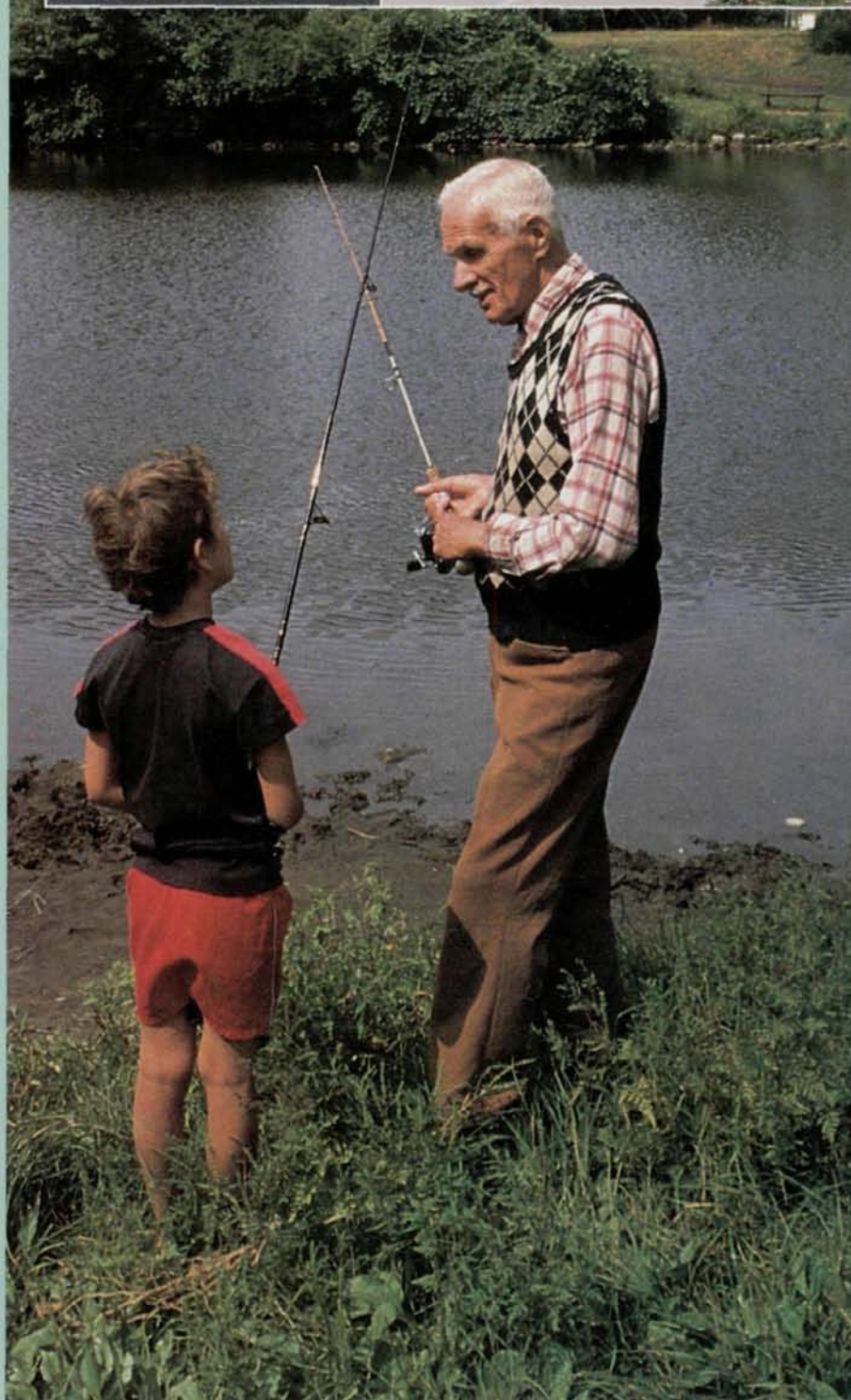
Because glycated hemoglobin results are so important, it is essential that the assay used provide true values time after time.

Glyc-Affin GHb provides:

- accurate measurements of total glycated hemoglobin, not just HbA_1 or HbA_{1C}
- results unaffected by hemoglobin variants
- results unaffected by any temperature variation between 18°C and 35°C

Glyc-Affin GHb—
The True Value Clinical Advantage

Metabolic changes are detected sooner with Glyc-Affin GHb than with other assays, and they are more pronounced than HbA_1 or HbA_{1C} values. That's a clinical advantage for you and often a psychological boost for the patient, since they see progress sooner. It also provides an early warning system for lessening of control.



GLYCAFFIN™ GHb

The True Value Affinity Assay for Glycated Hemoglobin

worth specifying
worth doing four times per year . . .
because control is that important

For more information, call:
800-321-9632
(toll-free)
216-825-4525
(collect, in Ohio)

ISOLAB inc.
INNOVATIVE BIOCHEMICAL METHODOLOGY
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For patients who need to mix insulins

Novolin® 70/30

70% NPH Human Insulin Isophane Suspension &
30% Regular Human Insulin Injection (semi-synthetic)

► **Physiologic**—Closely approximates nondiabetic insulin secretion profile

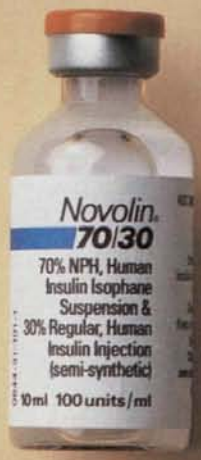
► **Convenient**—Eliminates complicated mixing procedures

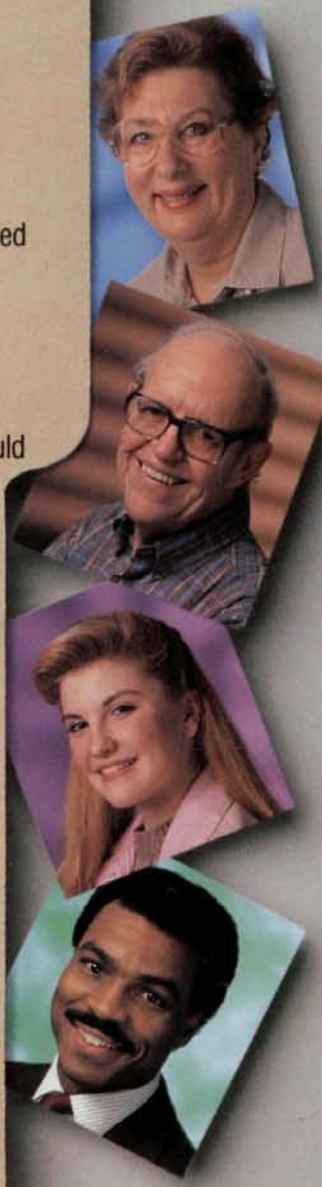
► **Accurate**—Eliminates risk of patients' mixing errors

► **Stable**—Premixed 70/30 ratio remains constant

► **Efficacious**—Effective in lowering blood glucose levels[1]

► **Nonimmunogenic**—Minimal IgG antibody development[2]





Newly diagnosed patients

Current insulin users who would benefit from a 70/30 mixture

Patients now mixing in approximately a 70/30 ratio*

Patients who could benefit from human insulin

For additional information concerning Squibb-Novo products, call 1-800-727-6500.

70% NPH Human
+30% Regular Human
100% Human Insulin

SQUIBB® NOVO®
The diabetes care specialists

References: 1. Sonnenberg GE, Kemmer FW, Cüppers HJ, et al: Subcutaneous use of regular human insulin (Novo): Pharmacokinetics and continuous insulin infusion therapy. *Diabetes Care* 1983;6(suppl 1):35-39. **2.** Schernthaner G, Borkenstein M, Fink M, et al: Immunogenicity of human insulin (Novo) or pork monocomponent insulin in HLA-DR-typed insulin-dependent diabetic individuals. *Diabetes Care* 1983;6(suppl 1):43-48.

*Dosage adjustments may be necessary for patients now using other human or beef insulin.