BEHAVIORAL AND BIOLOGICAL DIABETES RISK FACTORS

MODIFIABLE RISK FACTORS

HIGH SATURATED FAT INTAKE

LOW FIBER INTAKE

LOW PHYSICAL FITNESS LEVELS

OVERWEIGHT

NON-MODIFIABLE RISK FACTORS

AGE

GENETIC

DIABETES RISK FACTOS IN LOW-INCOME CHILDREN

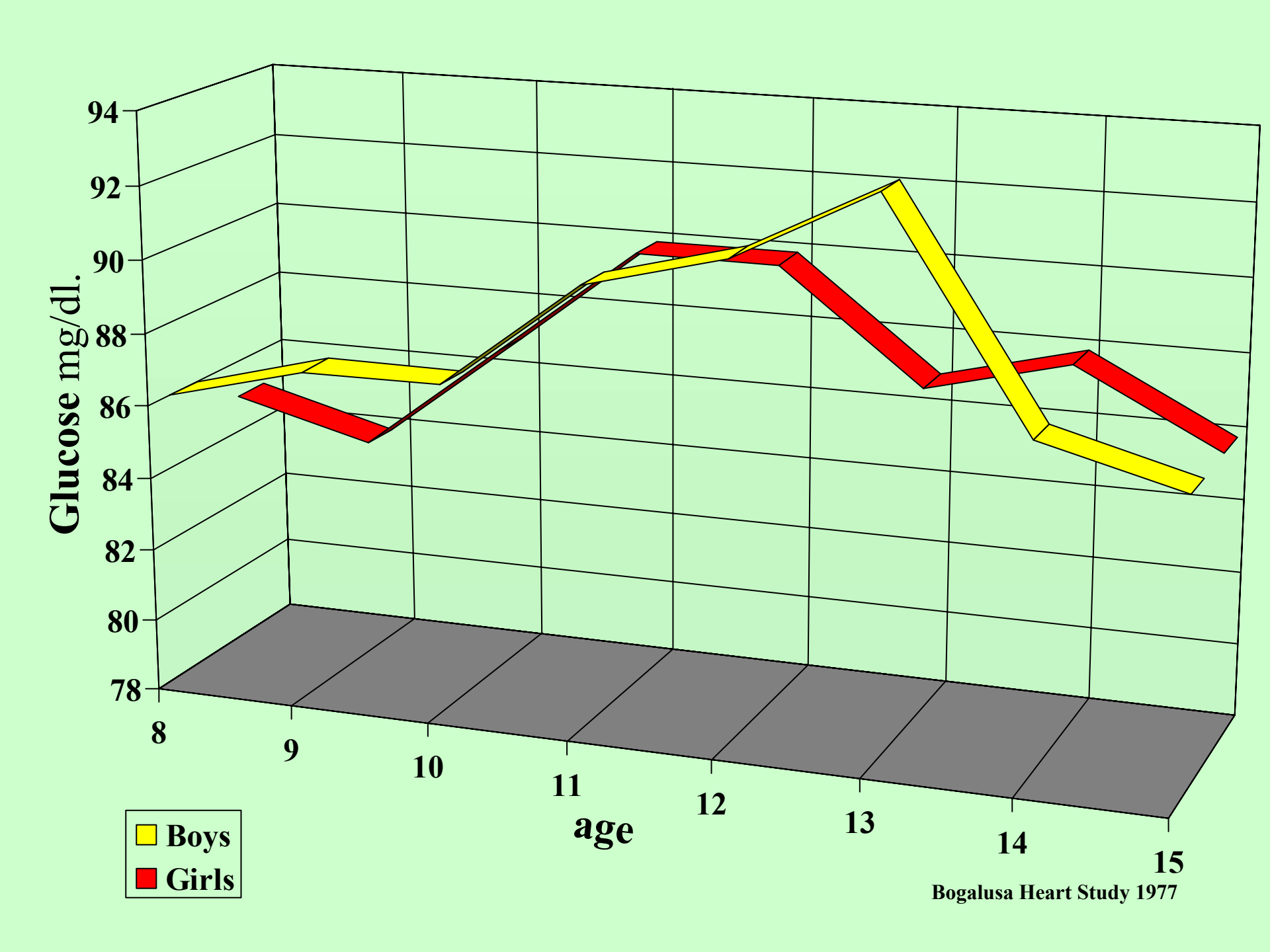
Characteristics	Guidelines	Values
ENERGY FROM		
SATURATED FAT (%)	**10**	**13**
FRUIT & VEGETABLES (servings)	**5**	**1.2**
FIBER (g)	**14**	**12**
TOTAL ENERGY (kcal)	**1400-2500**	**1923**

Trevino et al. Diabetes Care 98

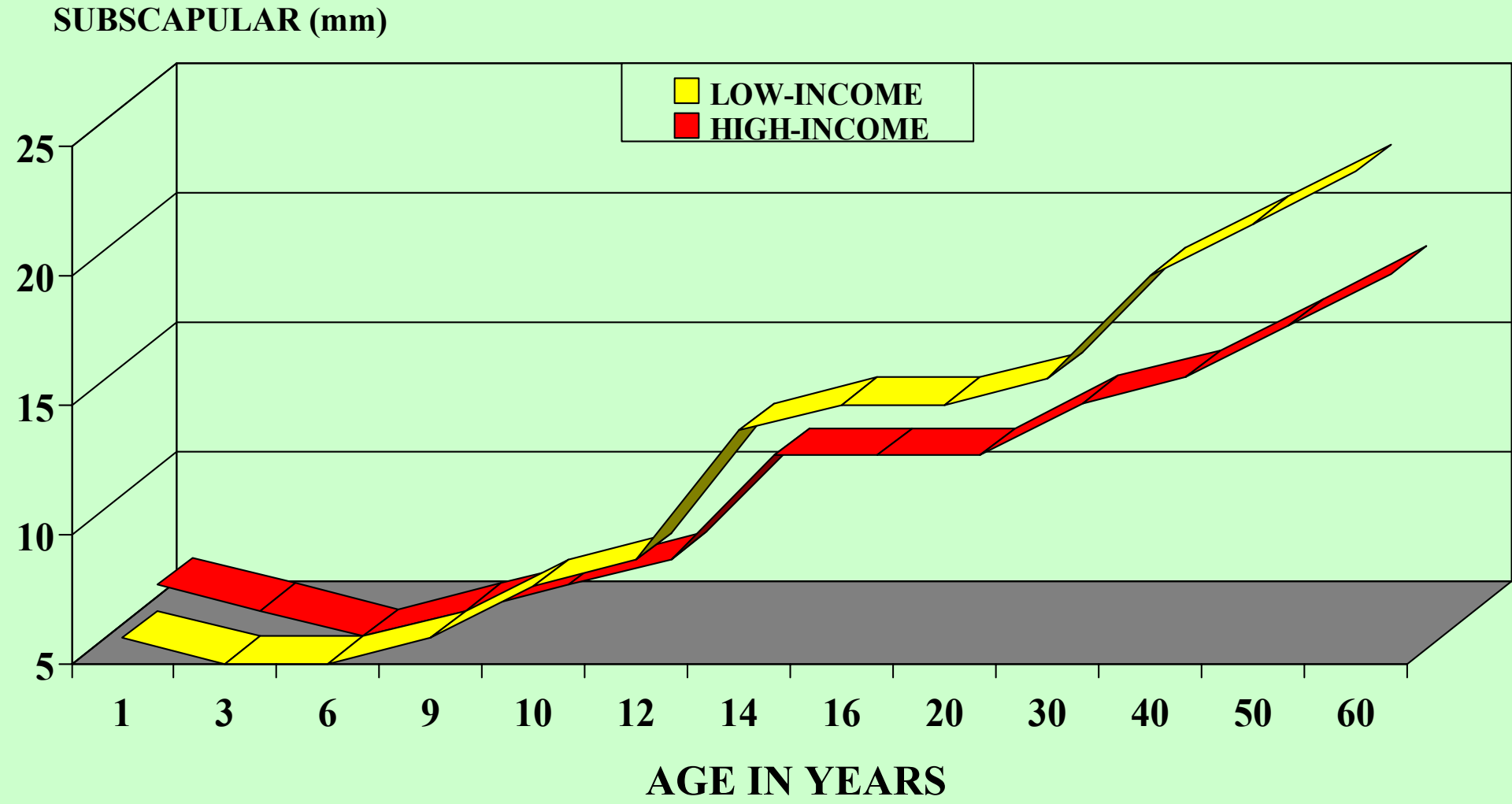
DIABETES RISK FACTORS IN LOW-INCOME CHILDREN

Characteristics		values
PHYSICAL FITNESS		
UNACCEPTABLE (%)		38
MARGINALLY (%)		49
ACCEPTABLE (%)		13
BODY FAT (%)	US	
BOYS	14	22
GIRLS	20	27
OVERWEIGHT PREVALENCE		
BOYS	11	21
GIRLS	11	18
FAMILY HX DIABETES (%)		60

Trevino et al. Diabetes Care 98

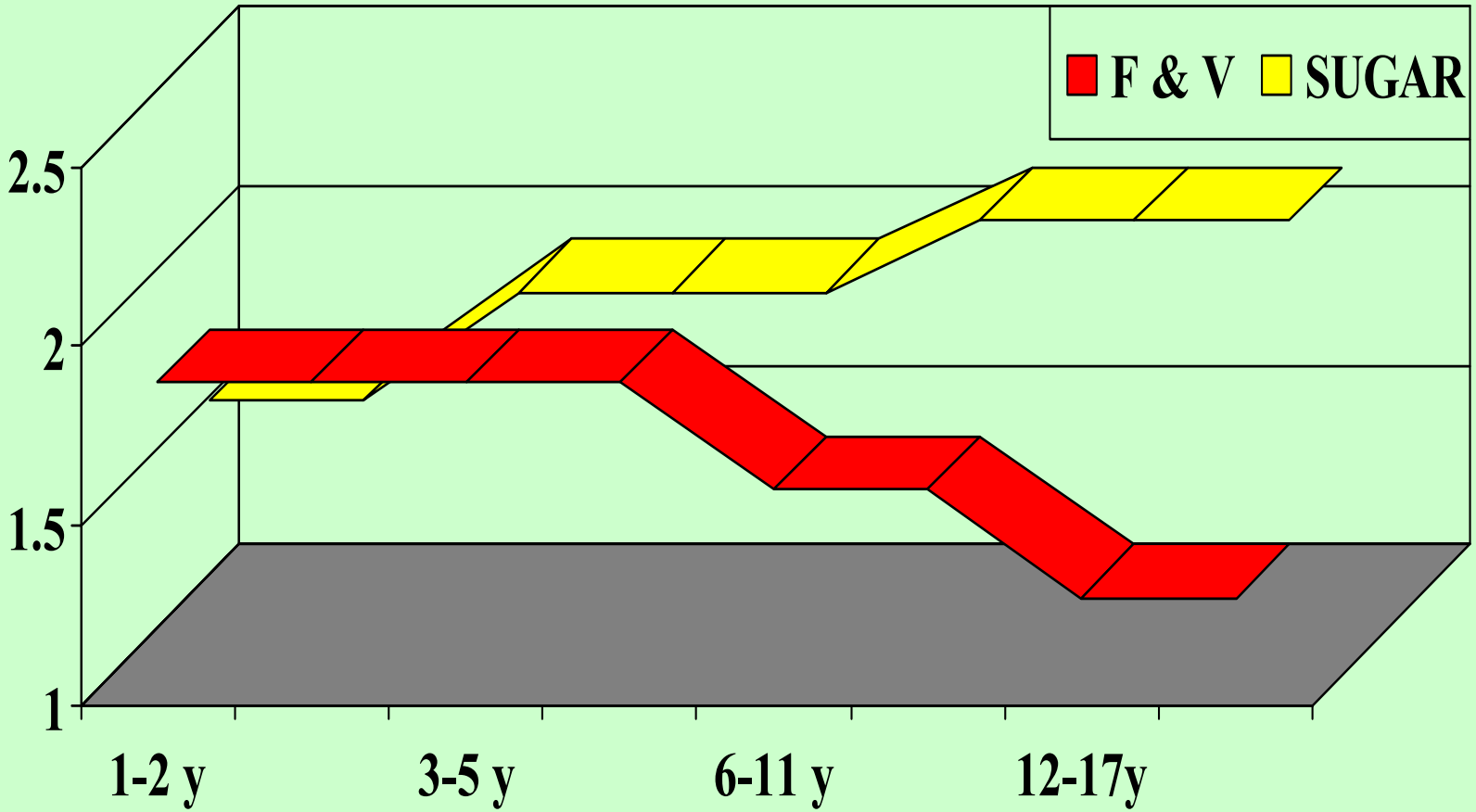

Glucose mg/dl.
94
92
90
88
86
84
82
80
78
8
9
10
11
12
13
14
15
age
Boys
Girls
Bogalusa Heart Study 1977

INCREASE IN BODY FATNESS IN GIRLS AFTER THE AGE OF NINE



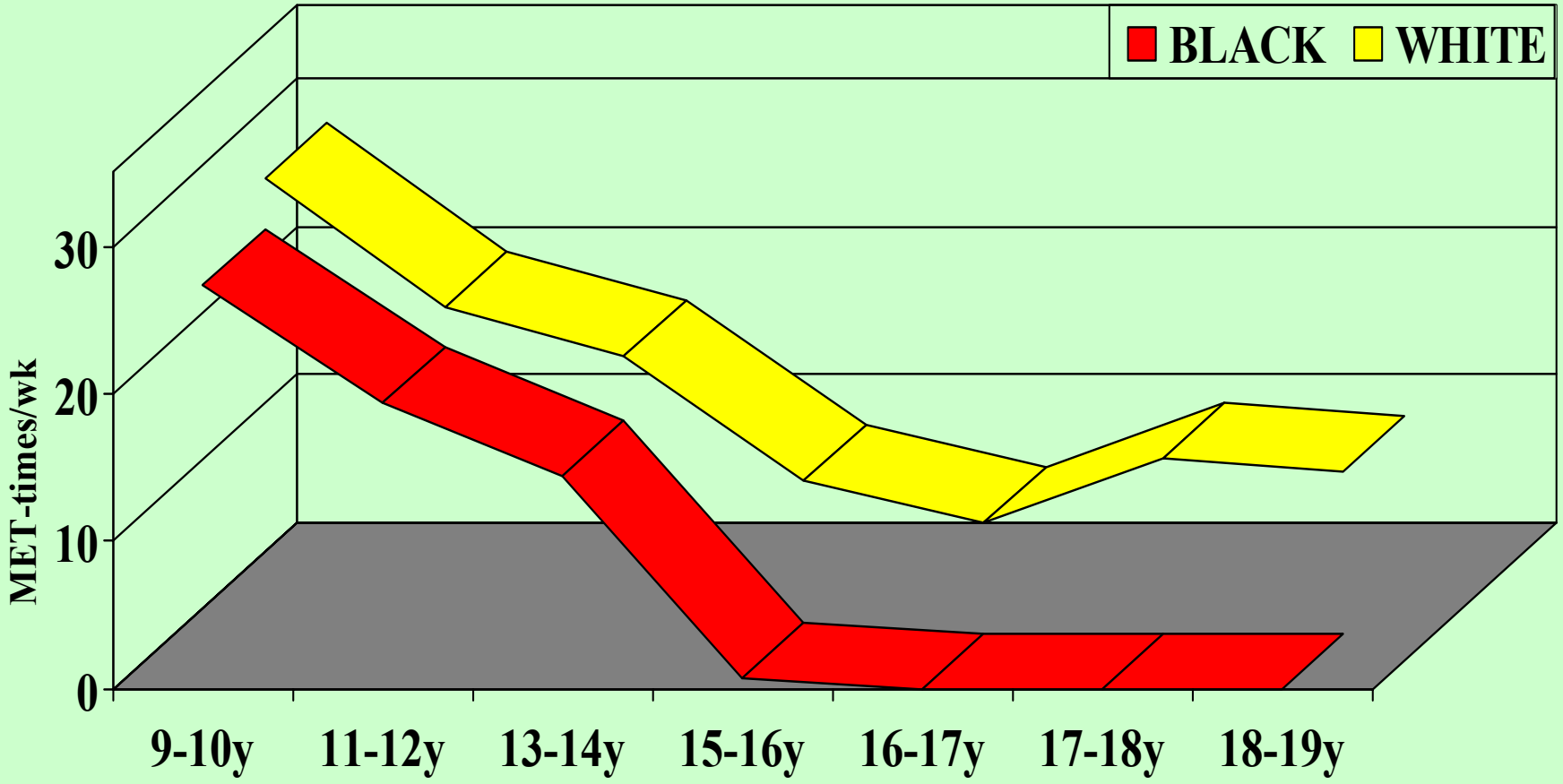
10 STATE, TECUMSEH & NHANES STUDIES, ECO FOOD & NUTR, 81

DECREASE IN F&V AND INCREASE IN SUGAR SERVINGS IN MEXICAN-AMERICANS AFTER THE AGE OF NINE



HHANES, J AM DIET ASSOC, 1990

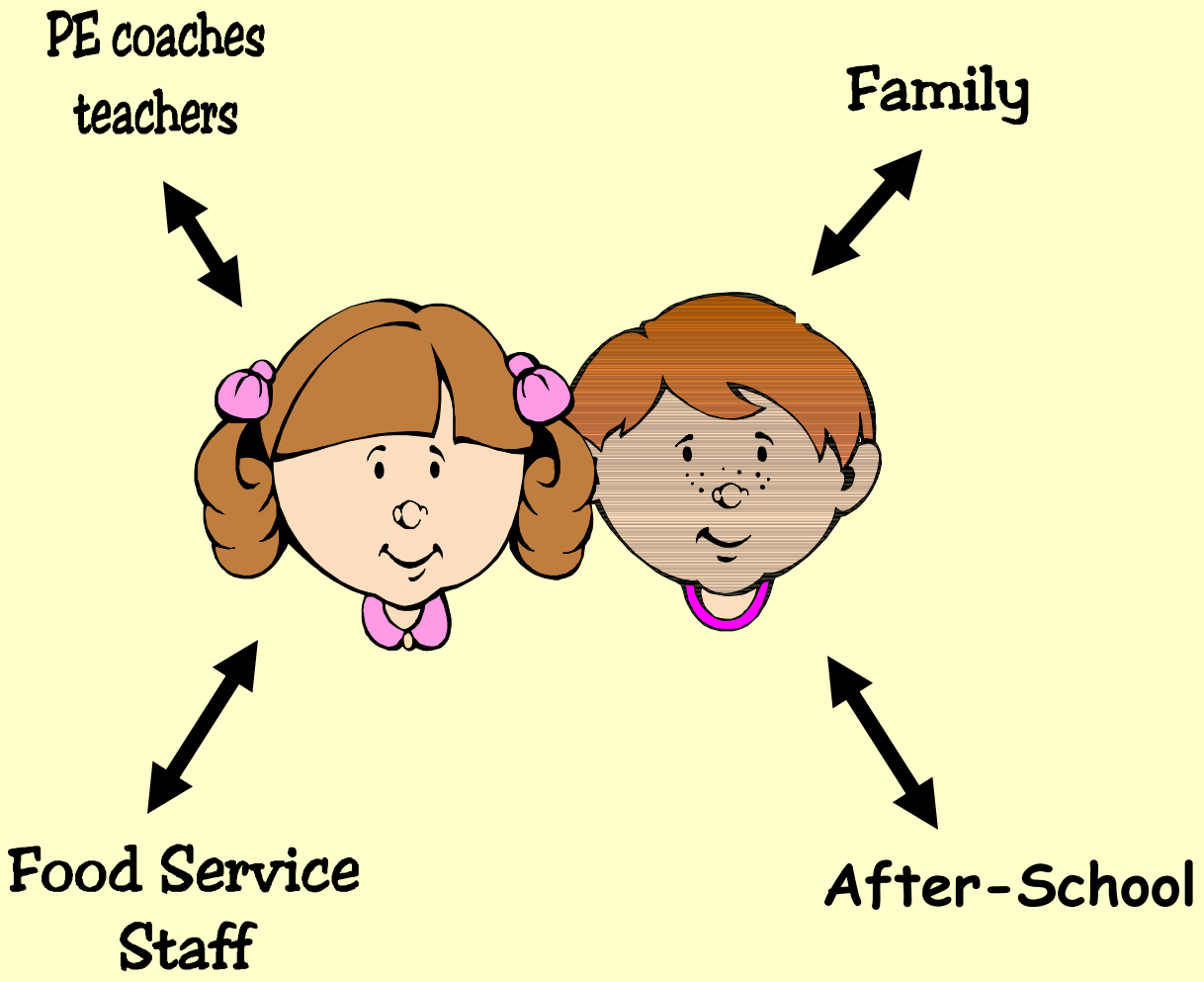
DECLINE IN PHYSICAL ACTIVITY IN BLACK AND WHITE GIRLS AFTER THE AGE OF NINE

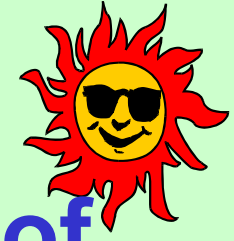


NHLBI Growth & Health Study, NEJM, 2002

SOCIAL COGNITIVE THEORY

TO CREATE A NETWORK OF SOCIAL SUPPORT





AIMS:

To prevent and or delay the onset of type 2 diabetes in children and at-risk populations

OBJECTIVES:

- **Decrease saturated fat intake**
- **Increase fiber intake**
- **Increase physical activity**
- **Prevent obesity**


Health & P.E.


Health Club


Bienestar
Health Club


Food Caferteria


Education Today
Success Tomorrow


Parent Component


2%
MILK

WORKLOAD
BIENESTAR SESSIONS AND CLIENT ENCOUNTERS A YEAR

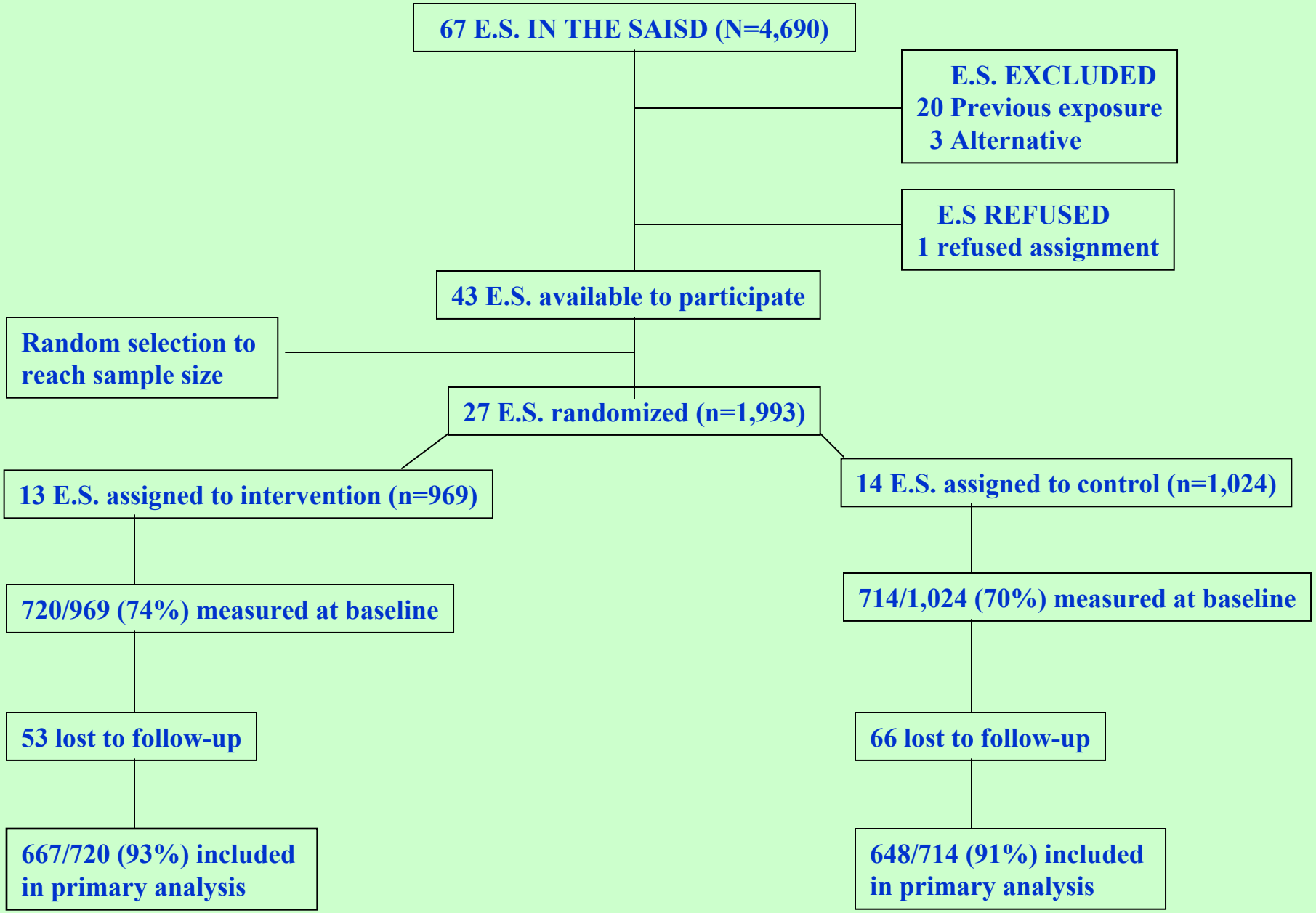
PROGRAMS	SESSIONS	ENCOUNTERS	DOSE
PARENTS	4		
SCHOOL CAFETERIA	7		
LUNCH VISITS	23		
HEALTH CLUB	23		
P.E. CLASS	23		
HEALTH CLASS	13		
	93	45	48%

S&HRC 2001-2002

REVERSING HYPERGLYCEMIA
MEAN FCG BEFORE & AFTER BIENESTAR

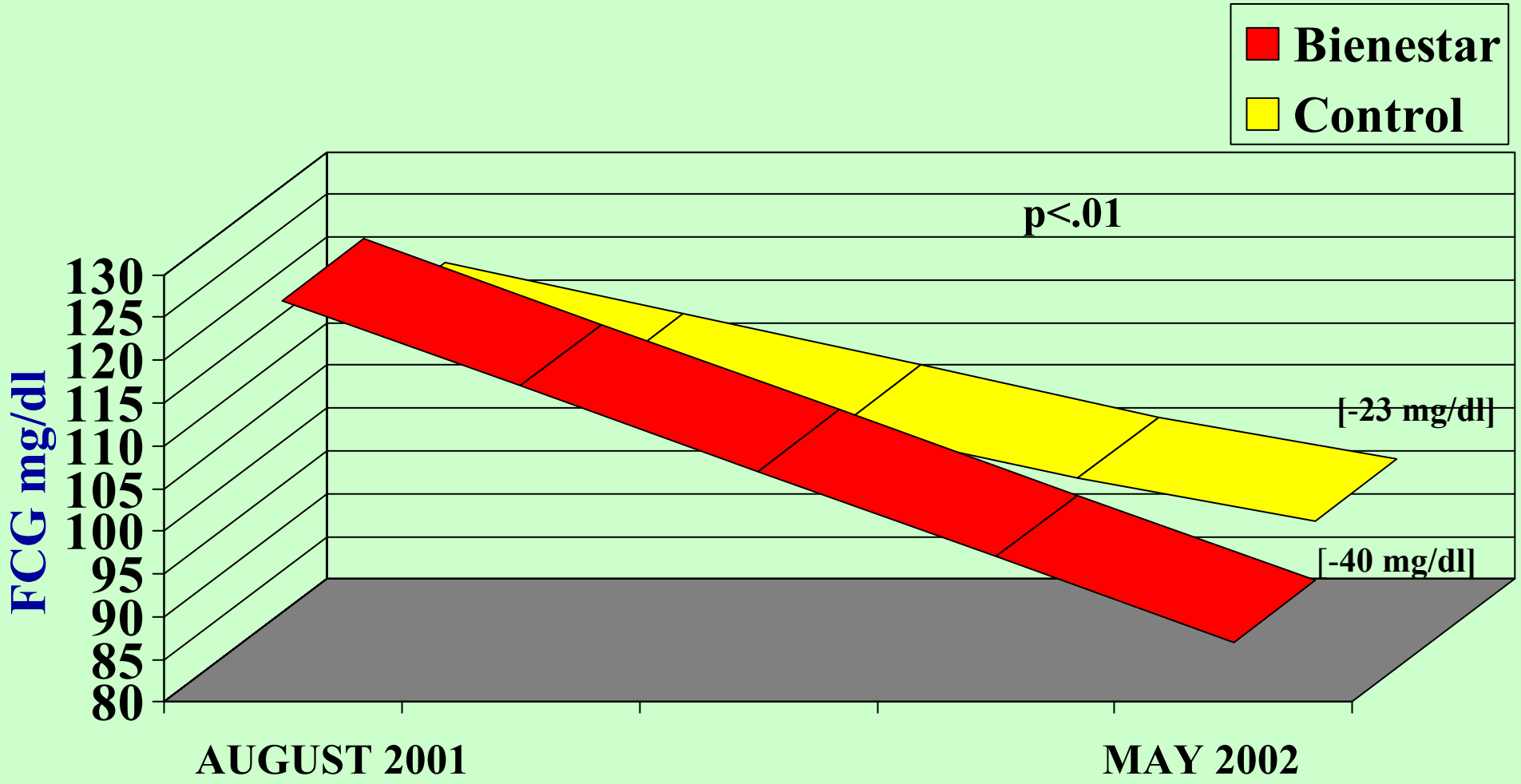
SCHOOL YEAR	STUDENTS	BASELINE	FOLLOW-UP	P VALUE
1999-2000	9	117±5.2	93±19.1	P < .05
2000-2001	43	123±17	99±9	P < .01
2001-2002	42	121±16	91±13	P < .01

Garcia, Diabetes 2003



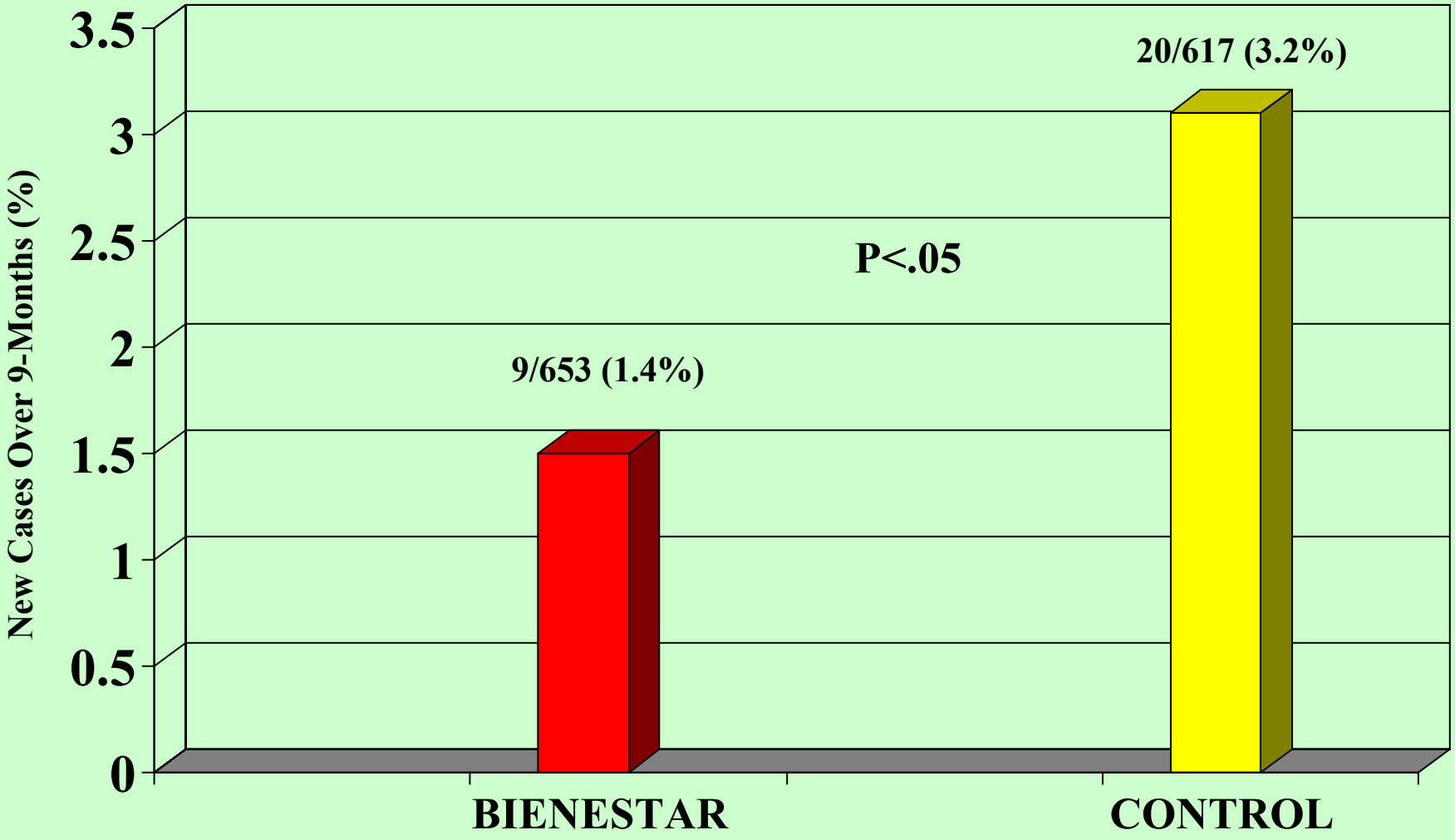
STUDENT FLOW DIAGRAM

RESTORING NORMOGLYCEMIA IN BIENESTAR (n=17) AND CONTROL (n=25) STUDENTS



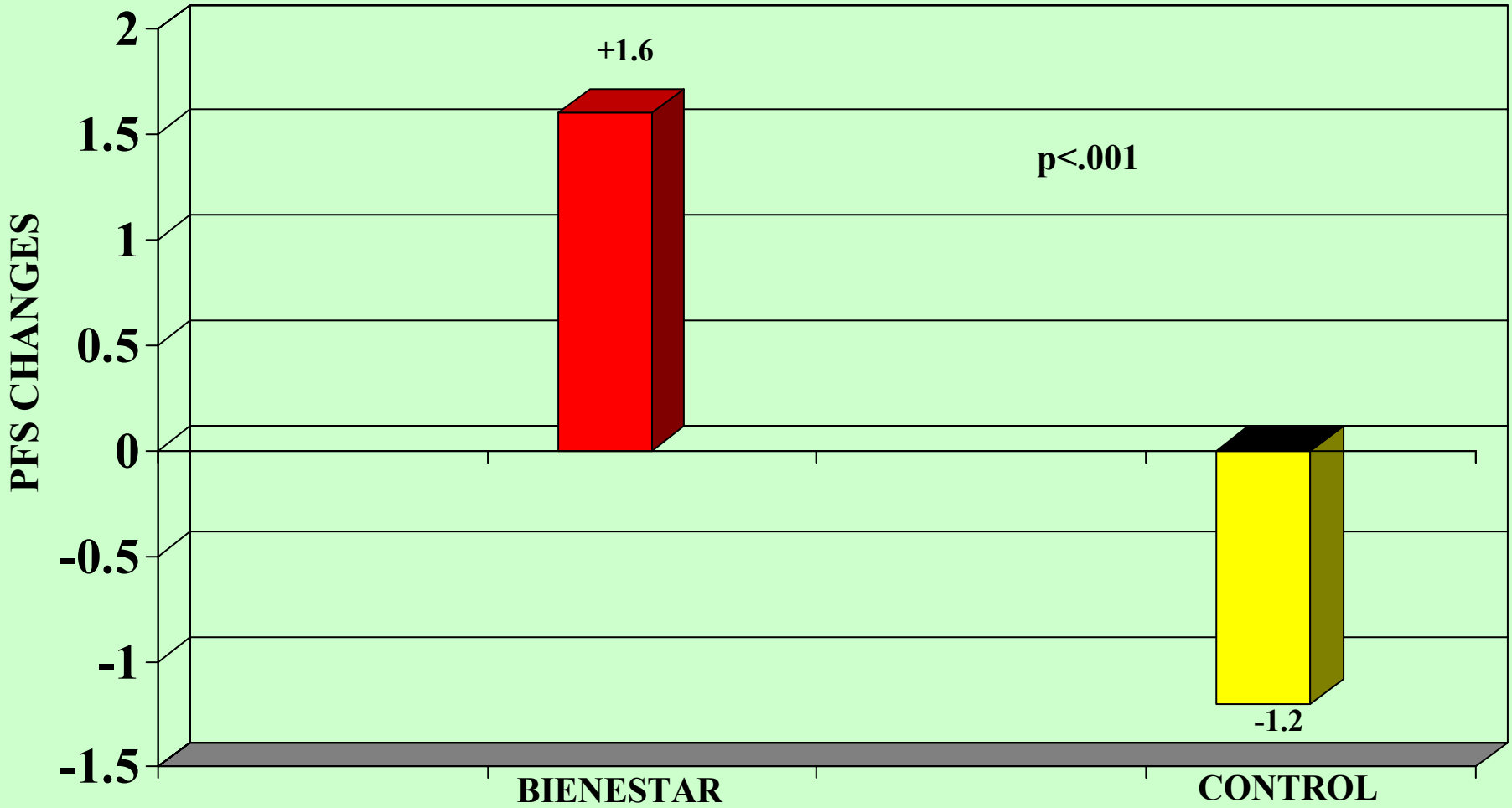
S&HRC 2002

INCIDENCE OF ABNORMAL FASTING CAPILLARY GLUCOSE (FCG≥110 mg/dl)



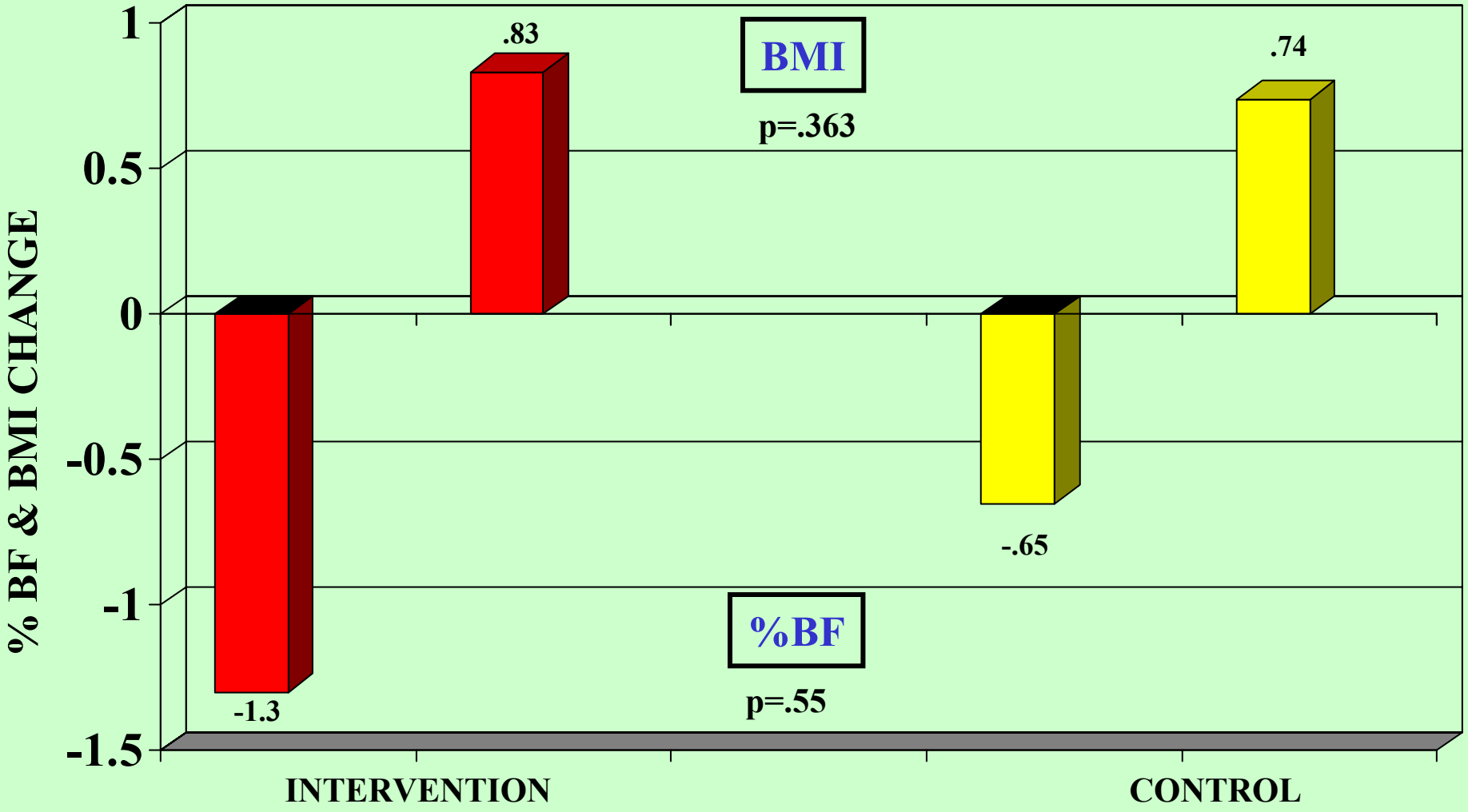
Trevino, Diabetes 2003

PHYSICAL FITNESS CHANGE SCORES BETWEEN INTERVENTION (n=661) AND CONTROL (n=637)



S&HRC 2002

PERCENT BODY FAT & BMI CHANGES BETWEEN INTERVENTION (n=653) AND CONTROL (n=637)

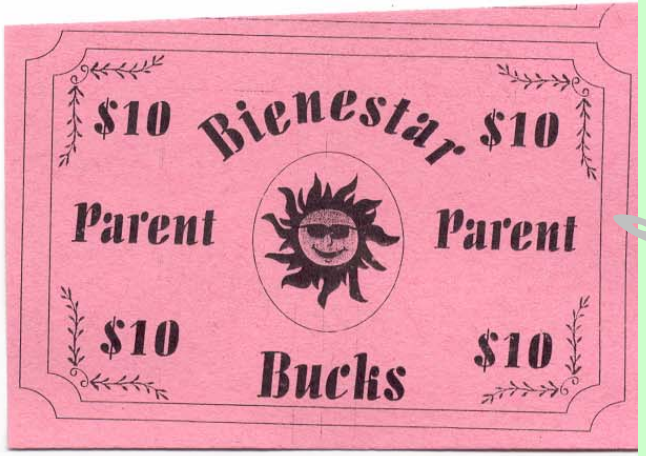


S&HRC 2002

BIENESTAR STUDENTS CONSUMED

- More calories .05
- More fat grams .02
- More monounsaturated fats .01
- More polyunsaturated fats .06
- More fiber .05

Parents



Students

School Staff

COST-EFFECTIVENESS

COST FOR PREVENTION	COST FOR TREATMENT
$4.20 family visit	$48.00 patient visit
OUTCOMES	OUTCOMES
⇑ Fitness	Blindness
⇑ Fiber	Amputation
Treat hyperglycemia	Dialysis
Prevent hyperglycemia	

UKPDS STUDY 2000

END OF PRESENTATION