FIGLEAF GONAD SHIELDS

OPERATION MANUAL

117-808

BIODEX

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This manual covers operation procedures for the following product:

117-808 Shields, Figleaf, 3/set

INTRODUCTION

Figleaf Gonad shields effectively protect female reproductive organs during pelvic radiography, angiography and fluoroscopy. Unlike most shielding devices for the ovaries, uterus and fallopian tubes, they do not obscure diagnostically important surrounding bone structures. Instead, they provide the protective shielding of 1mm lead equivalency and consistently block a minimum of 65% of all direct-beam radiation to gonadal tissues while significantly reducing scatter to vital organ areas.

INSTRUCTIONS FOR USE

Proper positioning of the Figleaf places the shield's vertical line directly on the mid-sagittal line of the patient's abdomen with the bottom edge of the shield aligned 1/2" (1.3 cm) to 3/4" (2.0 cm) above the pubic symphysis. When properly positioned, the Figleaf is secured to close-fitting undergarments, with microspore tape for best results.

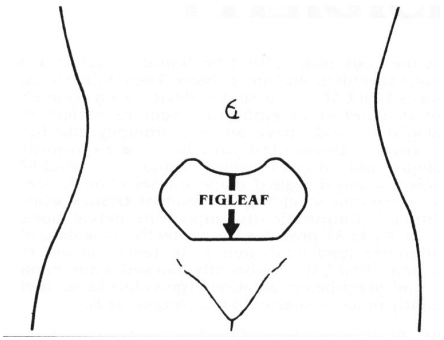

Figure 1. *Proper Figleaf positioning places the shield's vertical line directly on the mid-sagittal line of the patient's abdomen with the bottom edge of the shield aligned 1/2" (1.3 cm) to 3/4" (2.0 cm) above the pubic symphysis.*

Selection of the correct-size Figleaf is based upon the patient's abdominal thickness at the point of beam entry. When the Figleaf is positioned the shield is separated by some distance from the ovaries and by an even greater distance from the x-ray film surface. This causes magnification of the shield shadow at the level of the ovaries and even more magnification at the film surface. By factoring magnification, even the smallest Figleaf can be used to give complete gonadal shielding without obscuring pelvic bone.

Research has shown that 90% of normal adult women's ovaries are located within 3 cm from each side of the mid-sagittal line (6 cm apart), and only 10% have ovaries as far apart at 7.5 cm. Thus, even the smallest Figleaf size is adequate to shield the ovaries in more than 90% of all cases. Beam magnification enlarges the protected area even more.

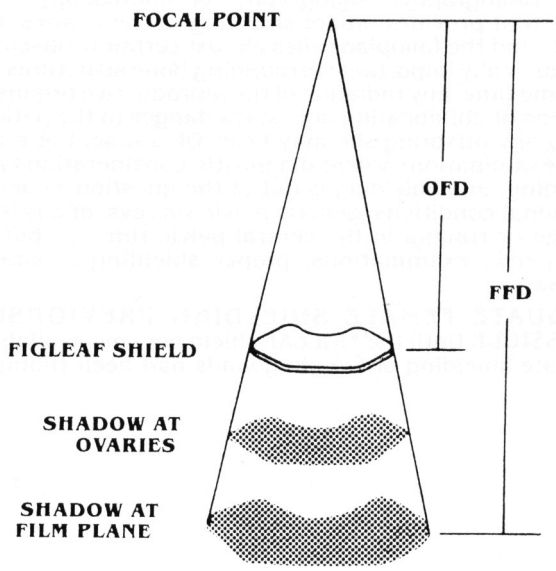

Figure 2. *Figleaf shadow at film plane.*

Table I shows the amount of magnification to be expected with abdominal thickness from 7 through 33 cm, with the smallest Figleaf used on the thickest abdomens and vice versa. Use this table to select the proper size
Figleaf for your examinations.

Figleaf is useful in many radiographic studies, lumbar spines, sacroiliac joints, acetabulum, even IVP's, as long as the shield is carefully positioned and secured in place so it cannot move into the field of interest. Many technologists prefer to use the small size Figleaf I for the first few studies until skill at placement is developed. For best results on smaller patients, Figleaf II or III should be used as recommended in Table 1.

Caution: *Figleaf will stop the primary beam rendering a photo timer cell, which lies beneath it, inoperative. It is recommended that you use manual (non-photo-timed) techniques where possible. Should your generator not offer a manual mode, be aware of the Figleaf shadow pattern and make adjustments accordingly.*

Figleaf should not be used for any examination where an acute abdominal condition is present.

Product contains lead. Handle with gloves and avoid skin contact.

TABLE 1

This table indicates the size of the shielding area, the plane of the patient's ovaries and the size of the shielded shadow that will appear on the x-ray film. The table was developed using the magnification formula:

$$\frac{OFD}{FFD - OFD} \times 100 = \text{PERCENT OF MAGNIFICATION}$$

The table makes several basic assumptions. These include:

1. This film plane is 2" (5.08 cm) below the table surface. Focal-film distance (FFD) is 40" (102 cm) including film-to-table top distance.
2. The ovaries are assumed to lie 9 cm below the abdominal surface for all abdominal thickness from 18 to 33 cm. Where abdominal thickness is less than 18 cm, the ovaries are assumed to be halfway between anterior and posterior surfaces.
3. It is assumed that the image of the bone structure surrounding the Figleaf will be magnified on the film in much the same way as the shield (although to a lesser degree, since it is closer to the film plane).

		AT FILM PLANE		AT OVARIES	
ABDOMEN (cm)	FIGLEAF SIZE	Image Size	% Magnified	Image Size	% Magnified
33		12.7 x 9.5 cm	159%	9.1 x 6.8 cm	114%
31		12.4 x 9.3 cm	155%	9.1 x 6.8 cm	114%
29	I	12.0 x 9.0 cm	150%	9.0 x 6.8 cm	113%
27	8 x 6 cm	11.7 x 8.8 cm	146%	9.0 x 6.8 cm	113%
25		11.4 x 8.5 cm	142%	9.0 x 6.8 cm	113%
23		13.8 x 9.0 cm	138%	11.2 x 7.3 cm	112%
21	II	13.4 x 8.7 cm	134%	11.2 x 7.3 cm	112%
19	10 x 6.5 cm	13.1 x 8.5 cm	131%	11.1 x 7.2 cm	111%
17		12.8 x 8.3 cm	128%	11.1 x 7.2 cm	111%
15		14.9 x 9.3 cm	124%	13.1 x 8.2 cm	109%
13	III	14.5 x 5.1 cm	121%	13.0 x 8.1 cm	108%
11	12 x 7.5 cm	14.3 x 8.9 cm	119%	12.7 x 8.0 cm	106%
9		13.9 x 8.7 cm	116%	12.6 x 7.9 cm	105%
7		13.6 x 8.5 cm	113%	12.5 x 7.8 cm	104%

MAGNIFICATION WITH THE FIGLEAF SHIELD

OFD = Object - Film Distance
FFD = Focal - Film Distance

Note: All measurements in centimeters.

Recommended Figleaf	OFD (cm)	Magnified Shield Image (abdominal area obscured) for Indicated Shield			% Magnification
		8 x 6 cm	10 x 6.5 cm	12 x 7.5 cm	
8 x 6 cm	33	11.8 x 8.9 cm	14.8 x 9.6 cm	17.8 x 11.1 cm	148%
	32	11.2 x 8.8 cm	14.6 x 9.5 cm	17.5 x 11.0 cm	146%
	31	11.5 x 8.6 cm	14.4 x 9.4 cm	17.3 x 10.8 cm	144%
	30	11.4 x 8.5 cm	14.2 x 9.2 cm	17.0 x 10.6 cm	142%
	29	11.2 x 8.4 cm	14.0 x 9.1 cm	16.8 x 10.5 cm	140%
	28	11.0 x 8.3 cm	13.8 x 9.0 cm	16.6 x 10.3 cm	138%
	27	10.9 x 8.2 cm	13.6 x 8.8 cm	16.3 x 10.2 cm	136%
	26	10.7 x 8.0 cm	13.4 x 8.7 cm	16.0 x 10.0 cm	134%
	25	10.6 x 8.0 cm	13.3 x 8.6 cm	16.0 x 10.0 cm	133%
10 x 6.5 cm	24	10.5 x 7.9 cm	13.1 x 8.5 cm	15.7 x 9.8 cm	131%
	23	10.3 x 7.7 cm	12.9 x 8.4 cm	15.5 x 9.7 cm	129%
	22	10.2 x 7.7 cm	12.8 x 8.3 cm	15.4 x 9.6 cm	128%
	21	10.1 x 7.6 cm	12.6 x 8.2 cm	15.1 x 9.5 cm	126%
	20	10.0 x 7.5 cm	12.5 x 8.1 cm	15.0 x 9.4 cm	125%
	19	9.8 x 7.4 cm	12.3 x 8.0 cm	14.8 x 9.2 cm	123%
	18	9.8 x 7.3 cm	12.2 x 7.9 cm	14.6 x 9.1 cm	122%
	17	9.6 x 7.2 cm	12.0 x 7.8 cm	14.4 x 9.0 cm	120%
	16	9.5 x 7.1 cm	11.9 x 7.7 cm	14.3 x 8.9 cm	119%
12 x 7.5 cm	15	9.4 x 7.0 cm	11.7 x 7.6 cm	14.0 x 8.8 cm	117%
	14	9.3 x 7.0 cm	11.6 x 7.5 cm	13.9 x 8.7 cm	116%
	13	9.2 x 6.9 cm	11.5 x 7.5 cm	13.8 x 8.6 cm	115%
	12	9.0 x 6.8 cm	11.3 x 7.3 cm	13.6 x 8.5 cm	113%
	11	9.0 x 6.7 cm	11.2 x 7.3 cm	13.4 x 8.4 cm	112%
	10	8.9 x 6.7 cm	11.1 x 7.2 cm	13.3 x 8.3 cm	111%
	9	8.7 x 6.5 cm	10.9 x 7.1 cm	13.1 x 8.2 cm	109%
	8	8.7 x 6.5 cm	10.9 x 7.1 cm	13.1 x 8.2 cm	109%
	7	8.6 x 6.4 cm	10.7 x 7.0 cm	12.8 x 8.0 cm	107%

THE PERCENT OF MAGNIFICATION IS DEFINED BY THE FORMULA:

OFD = Object – Film Distance
FFD = Film Distance

$$\frac{OFD}{FFD - OFD} \times 100 = \text{PERCENT MAGNIFICATION}$$

	ABDOMEN THICKNESS	SHADOW AT OVARIES	SHADOW AT FILM	MAGNIFICATION AT FILM
FIGLEAF I	33	6.8 X 9.6	8.4 X 11.8	148%
FIGLEAF II	20	7.5 X 11.1	8.5 X 12.5	125%
FIGLEAF III	14	8.2 X 12.6	11.5 X 17.8	116%

(All dimensions are in cm,)

Note: During Figleaf development a study of several hundred ultrasound and hysterosalpingographic examinations showed that 90% of normal adult ovaries are located within 3 cm laterally of the mid-sagittal line - or not more than 6 cm apart.

Note: A detailed magnification chart is packaged with each Figleaf set.

SPECIFICATIONS
Small: 3.2" w x 2.4" h (8 x 6 cm)
Medium: 4" w x 2.75" h (10 x 7 cm)
Large: 4.75" w x 3.2" h (12 x 8 cm)

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