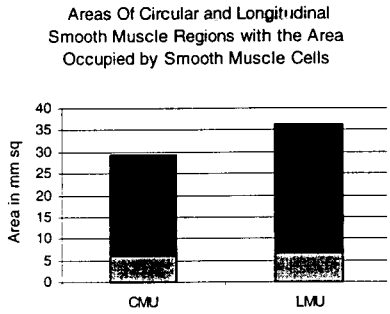
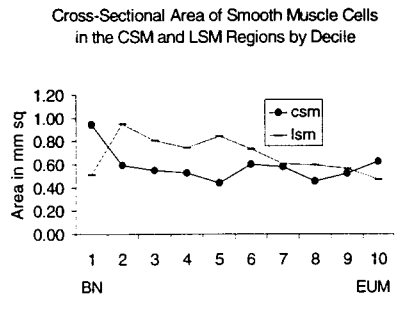
smooth muscle near the bladder neck, and it declines to 11% towards the external meatus showing relatively little change in smooth muscle from one decile to the next (see right graph below).





Conclusion:

Regions of smooth muscle occupy a significant portion of the muscular urethral wall. The longitudinal muscle in the urethra occupies as much area as circular smooth muscle. Smooth muscle cells, however, occupy little of this region, with the interstitial tissues comprising a majority of this area. It is interesting that for the urethra that has a sphincter responsible for maintaining continence, approximately half of the tissue is longitudinal muscle and within the muscle regions and up to 80% of the tissue is acontractile connective tissue and other elements. The layers do not have a thicker region in the mid-urethra similar to that found in the SUGS so the mid-urethral rise in MUCP is not likely created by smooth muscle action.

64

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EXTRACTION OF CELLULAR GENETIC MATERIAL FROM HUMAN FASCIA LATA ALLOGRAFTS

AIMS OF STUDY: With the increasing use of the pubovaginal sling to treat stress urinary incontinence, human cadaver fascia lata has gain wide acceptance as a sling material option. Longevity of sling integrity and potential for disease transmission are important issues surrounding the use of this material. In light of the scarcity of data regarding the DNA / RNA content in commercially available allografts, molecular techniques for extraction of cellular genetic material was performed on allografts subjected to 4 different tissue processing techniques.

METHODS: 10 mg samples from 4 commercial sources of human allograft fascia all processed by 4 different techniques (patented and unpatented) underwent a standard extraction technique (proteinase K / SDS / RNase / phenol) for total DNA content. Appropriate positive (fresh human fascia) and negative controls were used to validate concerns regarding handling and processing of the samples. Spectophotometric detection was used to quantify DNA concentrations using A260 and A280.

RESULTS: All material tested from commercial sources of human allograft fascia contained DNA material; this was irrespective of the processing technique used to eradicate cellular genetic material. DNA concentrations ranged from 0.3 to 3.0 ug/mg tissue. A ratio of 1.5 or higher for OD 260 / 280 was obtained for all samples, indicating an optimal extraction method.

CONCLUSION: Contrary to reports from commercial sources and regardless of the processing method used to eradicate human

cellular genetic material, all 4 commercially available fascial allografts which are representative of the current material available for sling formation contain DNA. Further test using DNA primers and polymerase chain reaction (PCR) are being conducted on the isolated DNA to determine the specific length of amplified DNA fragments and the integrity of this genetic material. Parallel studies of RNA isolation and PCR amplification are of paramount importance.

65

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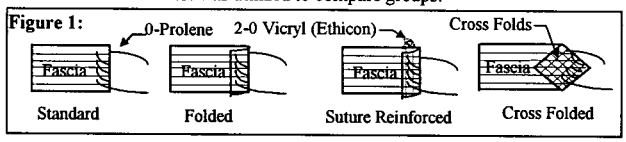
CADAVERIC ALLOGRAFT STRENGTH: AN ASSESSMENT OF THE EFFECTS OF PRESERVATION TECHNIQUES AND THE METHODS OF SUTURE FIXATION USING TWO SEPARATE EXPERIMENTAL MODELS.

AIMS OF STUDY: Cadaveric tissues are commonly used in reconstructive urology and gynecology. Cadaveric fascia lata allografts (CFA) are the primary tissue that is utilized and various methods for tissue preservation and sterilization exist. There has also been new interest in the use of decellularized cadaveric dermis allografts (DCDA). Unfortunately little data exists about the mechanical properties of the various available cadaveric tissues. In addition, numerous techniques to secure suture to the allograft edge have been described. Our aims were to: 1) evaluate the mechanical and tensile properties of three CFA preparations and two DCDA preparations; and 2) measure the strength of four allograft suturing techniques.

METHODS:
1) Freeze-dried-gamma-irradiated, freeze-dried, and solvent-dehydrated-gamma-irradiated (Tutoplast) fascias were rehydrated and measured for thickness. Freeze-dried DCDA (Alloderm) was similarly rehydrated and 40/1000th" and 25/1000th" samples were tested. CFA and DCDA strips (2 x 5 cm) were loaded to failure. CFA strips were pulled parallel to the fascial grain and DCDA strips were pulled in a random orientation using a uni-axial tensiometer.
2) Freeze-dried-gamma-irradiated fascia was then selected for suture technique testing. A 0-Prolene (Ethicon) was sutured to 2 cm wide strips of fascia utilizing four methods (Fig. 1). Each configuration was loaded to failure ("pull through" or suture breakage). In both studies, maximum load alone, and adjusted to thickness were calculated. Bimodal Student's t-Test was utilized to compare groups.

Figure 1:



RESULTS:
1) The three different preparations of cadaveric fascia and the 25/1000th" cadaveric dermis showed no statistical differences in maximum load, thickness or thickness adjusted maximum load, $p>0.01$. The 40/1000th" cadaveric dermis had a significantly higher maximum load to failure compared to the other groups, $p<0.01$. However, when thickness was factored in there were no statistical differences between any of the groups, $p>0.01$. (Table 1).

Table 1. Tensile Strength of Three Fascial and Two Dermis Preparations (mean ± SD), * $p<0.01$

Sample	N	Thickness (in)	Max. Load (lb)	Thickness Adj. Max. Load (psi)
Freeze-dried-gamma-irradiated fascia	12	0.019 ± 0.004	28.4 ± 5.5	1906 ± 470
Freeze-dried fascia	9	0.021 ± 0.003	34.1 ± 7.9	2049 ± 451
Solvent-dehydrated-gamma-irradiated fascia	12	0.022 ± 0.003	34.5 ± 5.6	2044 ± 364
Decellularized dermis 25/1000th inch	13	0.025	37.3 + 12.9	1893 ± 604
Decellularized dermis 40/1000th inch	7	0.040	**76.2 ± 12.8***	2419 ± 407

RESULTS: (continued)
2) Statistically significant variations in tensile strength was noted between all four suture techniques ($p<0.05$, Table 2). Cross-folded fascia was 5.5x stronger than "standard", and the 0-Prolene suture broke before "pull through" in all cross- folded samples.

Table 2. Tensile Strength of Four Suture to Fascia Configurations (n=6), * $p<0.05$

Configuration	Thickness (in)	Max. Load (lb)	Thickness Adj. Max. Load (psi)
Standard	0.25 ± 0.03	**4.7 ± 0.8***	**24.2 ± 5.5***
Folded	0.21 ± 0.06	**8.9 ± 4.2***	**51.1 ± 13.5***
Suture reinforced	0.16 ± 0.01	**12.4 ± 1.6***	**98.3 ± 10.9***
Cross-folded	0.17 ± 0.01	**17.3 ± 1.3***	**132.7 ± 10.3***