appealing forms. There was limited research looking at physicians’ or patients’ perceptions of FMT in the UK, which would be useful in order to identify barriers to FMT treatment which are applicable to the UK.

### Abstract P312 Table 1

<table>
<thead>
<tr>
<th>Assessment criteria</th>
<th>RS group</th>
<th>FE group</th>
<th>P value chi square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air leak test (intraabdominal)</td>
<td>8/10</td>
<td>22/22</td>
<td>0.03</td>
</tr>
<tr>
<td>Staple line visualisation</td>
<td>6/10</td>
<td>22/22</td>
<td>0.008</td>
</tr>
<tr>
<td>Recording mucosal grading score</td>
<td>4/10</td>
<td>21/22</td>
<td>0.005</td>
</tr>
</tbody>
</table>

### Abstract P313

#### ELECTROCHEMICAL PROBE FOR SIMULTANEOUSLY TRACKING ANORECTUM MUCOSAL SIGNALLING TRANSMITTERS AND MUSCLE CONTRACTION

Bhavik Patel*, Hisham Hamzah, Derek Covill, Mark Yeoman. University of Brighton, Brighton, UK

10.1136/gutjnl-2020-bsgcampus.387

**Introduction** Serotonin (5-HT) is a key signalling molecule within the mucosal epithelium of the intestinal wall and has been shown to be an important modulator of motility. At present, no single approach has been established for simultaneous dual measurement of 5-HT overflow and circular muscle contraction.

**Methods** We developed a 3D-printed carbon black/polyactic acid (PLA) electrochemical sensor, which had a geometry suitable for *ex vivo* measurement in the guinea pig anorectum. Phasic changes in the current were used to track contractility, whilst basal changes were used to track changes in mucosal 5-HT signalling. Using amperometric detection, the sensitivity and stability of the device for 5-HT measurements was assessed. The device was compared with an isometric force transducer for tracking of anorectal contractions.

**Results** The 3D-printed electrochemical sensor had a linear range in physiological concentrations of 5-HT (1–10 μM) present within the intestinal tract and a limit of detection of 540 nM. There was a significant correlation in the amplitude and duration of individual contractions when comparing the measurements using an isometric force transducer and 3D-printed electrochemical sensor (p<0.001, n=7). Finally, in the presence of 1 μM fluoxetine, the sensor was able to monitor a reduction in contractility (p<0.001, n=7) as well as an increase in 5-HT overflow (p<0.001, n=7). The sensor was stable for 5-HT measurement following *ex vivo* tissue measurements.

**Conclusions** The 3D-printed sensor can simultaneously measure 5-HT overflow and contractility in the anorectum. This single device will have significant potential for clinical measurements of anorectum function and signalling that can direct therapeutic management of patients with lower bowel disorders.

---

**Abstract P314**

#### UNDERSTANDING THE ROLE OF MELATONIN ON COLONIC FUNCTION

Yukyee Wu, Alexandra Baker, Mark Yeoman, Bhavik Patel*. University of Brighton, Brighton, UK

10.1136/gutjnl-2020-bsgcampus.388

**Introduction** Melatonin is synthesized from 5-HT by the enzyme hydroxyindole-O-methyltransferase and the EC cells maybe a site of synthesis and release of mucosal melatonin. Although the presence of melatonin in the gastrointestinal tract is not disputed its role in regulating gastrointestinal motility and its mechanism of action are still debated.

**Methods** We used electrochemical and chromatographic methods to detect the regulation of mucosal melatonin release from intact segments of 3 month old C57BL/6 murine colon. Colonic migratory motor complexes (CMMC) were recorded in the presence of melatonin, MT2 receptor antagonist 4-P-PDOT and MT1/2 receptor antagonist luzindole. Functional bioassays were carried out to study how varying concentrations of melatonin influenced electrical field stimulated (EFS)