# Video Based Analysis (VBA) of Techniques, Step Order, and Optional Step Choices in Minimally Invasive Roux-en-Y Gastric Bypass

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## Introduction

- Video Based Analysis (VBA) can be used to assess the inclusion and sequence of optional and required operative steps in evaluating surgical techniques
- There is minimal literature on the effect of surgical techniques and optional steps on step times
  - For example, is there a difference in gastric pouch creation step time when the Angle of His is dissected?
- This study evaluates VBA as a tool to assess the effects of certain selected sequences of Roux-en-Y Gastric Bypass (RYGB) video recordings

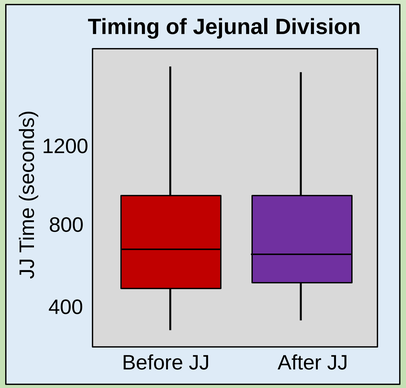
## Methods

- Videos: De-identified of PHI and PII, labeled by trained surgeon annotators with internally developed definitions
  - » Annotated steps categorized as Required, Quality, Optional, Complications or Complexity
  - » Any videos without all required RYGB steps were removed
- **Step time** calculated using time points labeled in video
- ANOVA was performed on:
  - Gastric pouch creation (GPC) step times when performing **perigastric vs pars flaccida entrance** of the lesser sac
  - GPC step time when choosing to **dissect the angle of His** prior to GPC
  - **Jejunal division (JD)** and jejuno-jejunal anastomosis (JJ) step time when performing JJ prior or after JD
  - GPC timing when **adhesiolysis** present or absent

## Results

- Videos: collected 441 total de-identified RYGB recordings from 9 unique bariatric surgeons, 328 eligible for inclusion
- **Choosing pars flaccida vs perigastric dissection** for entering the lesser sac did not significantly impact times to complete the GJ (557 vs 472 sec, p = 0.13) or GPC (370 vs 374 sec, p = 0.9)
- **Dissecting the angle of His** did not significantly impact GPC step time (583 vs 807 sec, p = 0.5)
- **Timing of jejunal division** prior to or after JJ did not significantly impact the JJ step time (779 vs 729 sec, p = 0.07)
- **Adhesiolysis** inclusion during the procedure did not significantly impact GPC time (2316 vs 2082 sec, p = 0.4)

| Angle of His Dissection | Procedure Count | GPC Mean Time (sec) | GPC Median Time (sec) |
|---|---|---|---|
| Yes | 11 | 583 | 507 |
| No | 7 | 807 | 804 |




| Adhesiolysis | Procedure Count | GPC Mean Time (sec) | GPC Median Time (sec) |
|---|---|---|---|
| Yes | 34 | 2316 | 2208 |
| No | 110 | 2082 | 1858 |

## Conclusions

- Certain variations on techniques, step order and optional step choices do not impact step times for gastric bypass
- Despite a small dataset, this study illustrates how objective VBA can provide useful guidance in selecting techniques and potentially eliminate variability of procedures