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of Medical Research: I

Surgeries and Cardiovascular System

Single Stage Resection

Receptor Status in Carcinoma

Highlights

Symptomatic Cystic Duct

Cardiorespiratory Fitness of Young

Discovering Thoughts, Inventing Future

VOLUME 15 ISSUE 3 VERSION 1.0

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Symptomatic Cystic Duct Stump Lithiasis 21Years after Cholecystectomy

By Somak Das, CV Gopakumar, Sdeepta Kumar Swain, Pavan Kumar Addala, Dinesh Zirpe, Kirubakaran Ranganathan & Balachandar TG

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Abstract- Cystic duct stump or remnant gall bladder is, if not always, one of the important cause of postcholecystectomy symptoms. In laparoscopic era incidence of leaving long cystic duct stump has increased. Also difficult gall bladder surgeries often end up with incomplete removal of gall bladder. Magnetic resonance cholangiogram is an optimal diagnostic modality. Treatment is to remove remnant cystic duct stump either by laparoscopy or by open method. We are reporting a case of symptomatic cystic duct stump with a very late presentation.

Keywords: remnant cystic duct stump, remnant gall bladder stump, incomplete cholecystectomy, postchole-cystectomy symptoms, laparoscopy, surgery.

GJMR-I Classification: NLMC Code: WI 755

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Symptomatic Cystic Duct Stump Lithiasis 21 Years after Cholecystectomy

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Abstract- **Cystic duct stump or remnant gall bladder is, if not always, one of the important cause of postcholecystectomy symptoms. In laparoscopic era incidence of leaving long cystic duct stump has increased. Also difficult gall bladder surgeries often end up with incomplete removal of gall bladder. Magnetic resonance cholangiogram is an optimal diagnostic modality. Treatment is to remove remnant cystic duct stump either by laparoscopy or by open method. We are reporting a case of symptomatic cystic duct stump with a very late presentation.**

Keywords: remnant cystic duct stump, remnant gall bladder stump, incomplete cholecystectomy, postcholecystectomy symptoms, laparoscopy, surgery.

I. Introduction

Difficult dissection in presence of severe inflammation or dense adhesions during surgery for symptomatic gall stone disease sometime ends up with incomplete cholecystectomy. Long cystic duct remnant is more frequently encountered in the laparoscopic approach, where the cystic duct is usually divided close to the gallbladder to avoid iatrogenic common bile duct injury[1]. Cystic duct stump lithiasis is found in 10-40% of patients with postcholecystectomy symptoms particularly in laparoscopic era[2]. We report a case presenting with symptomatic cystic duct lithiasis 21 years after open cholecystectomy.

II. Case Report

A 72 years old male patient with good performance status and no known co-morbid conditions came to us with complaint of recurrent dull aching pain in right upper abdomen for 2 months. Frequency of pain was 2 to 4 times per month. There was no radiation of pain. Each pain episode persisted for 1-2 hours. It did not require any hospital admission, but oral analgesics. It was associated with nausea but not with vomiting. It was not associated with fever, jaundice, anorexia or weight loss. History revealed that the patient had open cholecystectomy 21 years back (1993) for symptomatic gall stone disease in some other hospital. Written details of the surgery or histopathology reports were not available. It was a difficult procedure as told by the operating surgeon to the patient. Gall bladder and stones were shown to the patient's relatives at the end of the surgery. One drain had been kept during surgery, which was draining greenish fluid of maximum 200 ml /day for few days. Drain output gradually came down and the drain was taken out around 2 weeks after surgery. Patient was discharged after the drain removal. Since then the patient had no problem till two months back when he suffered from recurrent pain. Physical examinations of the patient were essentially normal. There was a 10 cm healthy right subcostal surgical scar with a 1.5 cm drain site scar just lateral to it. There was no palpable mass or organomegaly. No free fluid was detected. Routine blood investigations showed haemoglobin of 12.3 gm%, total leukocyte count of 7600/cumm, platelet count of 232000/cumm, urea of 23 mg/dl, creatinine of 0.9 mg/dl, bilirubin total of 0.8 mg/dl, ALT of 34 U/Lit, AST of 27 U/Lit, alkaline phosphatase of 69 U/Lit, total protein of 7.4 gm/dl and albumin of 4 gm/dl. Ultrasound abdomen revealed a 3 x 2 cm cystic lesion in gall bladder fossa with stones iside. Liver echotexture was normal. Intrahepatic or extrahepatic biliary channels were not dilated. Doppler ultrasound helped to elicit normal portal venous and hepatic arterial flow and pattern. Magnetic resonance cholangiopancreatogram (MRCP) revealed a 3 x 2 cm dilated remnant cystic duct stump with stones inside and normal intrahepatic and extrahepatic biliary channels (**Fig - 1**). Surgical management was planned and open exploration with completion cholecystectomy was performed. Abdomen was opened through the previous right subcostal incision. Dense right subhepatic and suprahepatic adhesions were divided. There was a 4 cm cystic duct stump with dilated distal part, densely adhered to liver bed (**Fig - 2**). Junction of cystic duct and common hepatic duct was dissected (**Fig - 3**). No cystic artery was found. Cystic duct was divided close to bile duct and transfixed. Remnant cystic duct stump containing two 5 mm calculi was dissected out of liver bed (**Fig – 4**). 28 french tube drain was placed in right subhepatic space. Abdomen was closed en masse. Postoperative period was uneventful. Patient was discharged on 3rd post operative day after removing drain. Histopathology revealed features of chronic inflammation in the resected specimen. Patient is now

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absolutely symptom free since this operation performed one year back.

Figure 1 : MRCP finding of symptomatic cystic duct stump stone

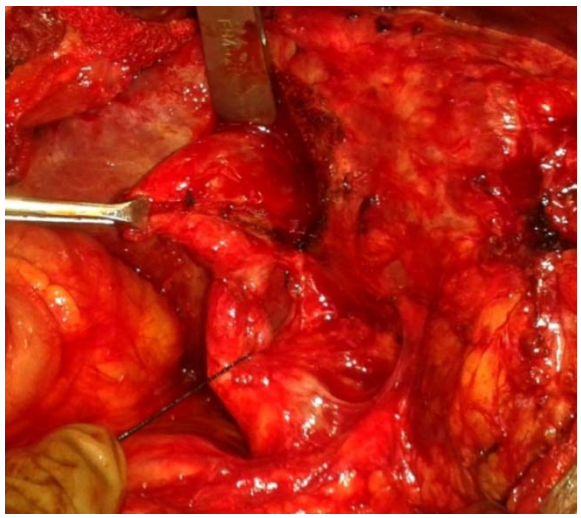

Figure 2 : Dilated cystic duct stump, operative finding

Figure 3 : Cystic duct stump separated from liver, operative finding

Figure 4 : Resected specimen

III. Discussion

Around 5% of postcholecystectomy patients present with severe right upper abdominal pain similar to symptomatic gall stone disease[3]. Causes are retained or recurrent bile duct stone, biliary stricture, cystic neuroma, papillary stenosis, sphincter of Oddi dyskinesia, cystic duct stump lithiasis or remnant gall bladder. These are collectively called postcholecystectomy symptoms and can present from two days to 25 years after surgery[1]. Cystic duct remnant is defined as residual cystic duct of more than 1 cm in length with or without presence of stones in a postcholecystectomy patient. It is more common in the setting of acute cholecystitis where to avoid bile duct injury cystic duct is often divided very near to gall bladder or some length of gall bladder is left in situ in the presence of severe inflammation in Calot's triangle [4, 5]. Also in laparoscopic era, division of cystic duct close to bile duct is often avoided to prevent bile duct injury. This situation can be prevented by correctly identifying cystic duct and bile duct junction and safely dividing the cystic duct keeping the cystic duct length less than 1 cm. Symptomatic cystic duct lithiasis usually presents with right-upper-quadrant pain and dyspepsia without jaundice [1].

Ultrasound abdomen is often the initial investigation but it can miss the cause of postcholecystectomy pain in nearly 50% of cases when compared to cholangiogram. MRCP has sensitivity between 85% to 100% in detecting biliary anatomy and stones. Endoscopic retrograde cholangiogram (ERC) is similarly effective tool, but exclusively used therapeutically when indicated [1]. Sensitivity and specificity of endoscopic ultrasound (EUS) is nearly similar to MRCP. EUS is particularly helpful to avoid unnecessary biliary canulation in suspicious cases, if done prior to ERC. Diagnosis of remnant cystic duct stump is considered if a gall bladder like structure is detected in a patient during radiological evaluation of post-cholecystectomy symptoms.

Treatment is surgical removal of cystic duct stump either by laparoscopy or by open method. Severe postoperative adhesions often require open procedure, though laparoscopic removal is feasible [5, 6, 7].

Here the patient had a symptomatic cystic duct stump lithiasis 21 years after a difficult cholecystectomy which had probably been complicated by postoperative biliary leak. Anticipating severe postoperative adhesions we opted for open completion cholecystectomy and thus justified our approach according to our findings.

IV. Conclusions

Symptomatic cystic duct stump lithiasis after cholecystectomy is an important cause of postcholecystectomy symptoms and can appear after variable period following gall bladder surgery. Ultrasound, EUS and MRCP can establish the diagnosis. Redo completion cholecystectomy either by laparoscopy or by open exploration, though often difficult, relieves the problem. Right upper quadrant abdominal pain after any period of time following cholecystectomy particularly with normal liver function tests, should be investigated accordingly to rule out this curable condition.

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A Single Stage Resection and Primary Anastomosis without Colonic Lavage for Left-Sided Colonic Obstruction- Our Experience

By Felix O. Oribabor, Oluwasegun A. Amao, Olufemi S. Fatudimu, Saheed O. Akanni, Bamidele O. Adebayo, Tunde Aladesanmi & David O. Akinola

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Abstract- *Introduction:* In the past century, colorectal surgeons considered a cleansed and empty bowel, a pre-requisite for a safe colonic and rectal resection and anastomosis. Also during this period, acute left colonic obstruction in an unprepared colon, could only be resected and primarily anastomosed if a proximal diverting colostomy was instituted. Tradition has held that an unprepared colon, poses an unacceptable high rate of failure of the anastomosis to heal. But recent evidence from Europe and other centres of the world have proven this surgical dogma to be incorrect.

The purpose of this study is to report our experience with a single-staged resection and primary anastomosis of acute left colonic obstruction, without bowel preparation or a diverting colostomy.

Methodology: A prospective study of a single-stage resection and primary anastomosis was done without mechanical bowel preparation or on-table colonic lavage or a proximal diverting colostomy for left colonic obstructions, on all consecutive patients that presented to the surgical unit of the Federal Medical Centre, Ido – Ekiti between January 2007 – December 2012.

Keywords: *left colonic obstruction, bowel preparation, single-stage resection and primary anastomosis.*

GJMR-I Classification: *NLMC Code: WI 770*

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A Single Stage Resection and Primary Anastomosis without Colonic Lavage for Left-Sided Colonic Obstruction- Our Experience

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Manual decompression of the colon was carried out, after resection intra-operatively. Post-operative abdominal infectious complications and extra-abdominal morbidity were looked out for and recorded prospectively.

Results: A total of forty-two (42) patients were included in the study. Twenty nine (29) of the patients were males, while thirteen (13) were females; with a male: female ratio (2.23:1).

Twenty-six (26) of the patients had left colonic and rectal tumours causing the obstruction, while in sixteen (16) patients, acute volvulus of the sigmoid colon accounted for the obstruction. No mortality was recorded in this study.

Conclusion: Single staged resection and primary anastomosis is a do-able, safe and reliable current treatment modality for surgical management of left colonic obstruction with a low morbidity.

Mechanical bowel preparation or on-table colonic lavage or proximal diverting colostomies are unnecessary with this technique.

Keywords: left colonic obstruction, bowel preparation, single-stage resection and primary anastomosis.

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I. Introduction

Since the first attempt at bowel surgery, a major aim had been to reduce the rate of post-operative infectious complications, especially anastomotic dehiscence[1]. In the first half of the 20th century, mortality from colon and rectal surgery often exceeded 20%, mainly attributed to sepsis.

Modern surgical techniques and improved peri-operative care have significantly lowered the mortality rates[1,2,3]. Infectious complications, however, is still a cause of morbidity, leading to increased costs, prolonged hospitalization and occasional mortality[3]. Efficient bowel preparation, mechanical bowel preparation (MBP)/ on – table lavage (OTL) or a diverting proximal colostomy, is considered to be a critical factor in preventing infectious complications and anastomotic dehiscenceafter colorectal surgery[3,4,5]. Since Plumley's[6] work on MBP of 1966 and Dudley et al[7,8] of On-table lavage in 1980, MBP and OTL have been accepted as a surgical dogma. Although bowel preparation may be desirable to decrease distension, facilitate abdominal closure and improve colonic blood supply, there is now some evidence that cleansing of the colon of faecal matter is not necessary to ensure anastomotic integrity [2,9,10,11,12].

The aim of this study is to evaluate the definitive one stage resection of the left colon and rectal obstructions (due to tumours/acute sigmoid volvulus) and primary anastomosis without colonic lavage or a diverting proximal colostomy.

II. Methodology

This is a prospective observational study of forty-two (42) consecutive patients, admitted into the Surgical Unit of the Federal Medical Centre (FMC) Ido – Ekiti, Ekiti State, South West Nigeria between January 2007 to December 2012 for acute Left Colonic Obstruction. The study was approved by the Ethical Review Committee of the hospital.

The left colonic obstruction was due, either to left colon and rectal tumours or acute sigmoid volvulus. Included patients' were aged 18 years or more, and had neither undergone MBP, On-table lavage nor a proximal

colostomy after resection and anastomosis. Exclusion criteria were Diabetics Mellitus, human immune-deficiency virus infection and any patient with severe co-morbdity that may hamper wound healing. The protocol also specified that any patient that may require a proximal diverting stoma would be excluded from the data analysis.

Informed consent was taken from every patient for inclusion in this study. The diagnostic protocol for every patient at presentation included clinical findings, plain abdominal x-ray, abdominal ultrasound, proctosigmoidoscopy and tissuebiopsy for histology; where applicable. Liver function test and chest x-rays were done to rule outviseral metastasis. All patients with sigmoid volvulus presented as emergencies with acute intestinal obstruction and abdominal distension ,their age ranged 65-85 years. In those patients whose obstructions were due to colonic tumours,18(69.23%) presented with chronic constipation alternating with diarrhoea, haematochezia and weight loss. Eight (30.77%) of them however presented as emergencies with complete obstruction as well as weight loss. The age of the patients with colonic tumour ranged between 22-70 years. All the patients were adequately resuscitated pre-operatively. They all had pre-operative broad spectrum antibiotics (metronidazole & ceftriaxone) and were continued post-operatively for about 5 days. Consultant surgeons performed all the operations.

Atlaparatomy, the left colonic/rectal tumours were assessed and resected. While the sigmoid volvulus was first untwisted to relieve the obstruction; gaseous distension of the bowel was relieved with a suction through a colostomy in the sigmoid colon. The colotomy was then closed and the sigmoid colon resected; as with the case of the colonic tumours, between two non-crushing clamps. The resected ends were isolated from the operating field, with the help of abdominal mops.

Careful manual decompression (milking) of the proximal and distal colons were carried out, at which stage the clamps were removed to allow the solid faces to be expelled. The clamps were re-applied and the bowel ends were cleansed with swabs soaked in normal saline. The two bowel ends were then anastomosed using a $^{2}/_{0}$vicryl as an inner layer and a silk $^{2}/_{0}$ as the outer layer. Both the proximal and distal colon/rectum were adequately mobilized to ensure a tension free anastomosis, which was manually done. No protecting stoma was instituted in any of the patients.

The peritoneum, after surgery were thoroughly lavaged with warm saline and peritoneal drains were routinely inserted.

The patients were closely monitored post-operatively for complications viz: wound infections, anastomotic leaks and intra abdominal abscesses.

Wound infection was defined as a wound draining purulent materials or erythema requiring re-initiation of antibiotic treatment. Anastomotic leakage was identified if faecal drainage was evident through a perianastomotic drain and abdominal abscess was defined as fluid collection demonstrated by abdominal ultrasound, in conjuction with elevated temperature or increased white blood cell counts. Tables were employed for data presentation. The results were analysed by arithmetic means and group percentages.

III. Results

A total of forty-two (42) patients were included in this study. There were twenty-nine 29, (69.0%) males and thirteen 13 (30.95%) females. Their ages ranged between 22 to 85 years.

The cause of the left colonic obstruction was due to tumours in twenty-six (61.90%) patients and sigmoid volvulus in sixteen (38.09%) patients. Table I.

Four patients (9.52%) were excluded from the study, three of them were elderly patients whose ages ranged between 68 and 82 years with poorly controlled diabetes mellitus and presented with sigmoid volvulus. The fourth was a 70 year old patient with low rectal tumour whose anastomosis was protected with a proximal colostomy.

Analysis of the post-operative outcome in this study is shown in Table II.

Post-operative abdominal infectious complications were documented in (4) patients 9.52% and anastomotic leakage occurred in one (1) patient 2.38%.

There was no clinical evidence of intra-abdominal abscess collection with faecal peritonitis.

All the wound infections were managed conservatively with antibiotics (ceftriaxone and metronidazole).

No mortality was recorded and the duration of hospital stay ranged from 10 days to 21 days. The long hospital stay was found in those patients' that had wound infections.

All the patients had a favourable outcome and were discharged to the surgical outpatient clinic where they were seen for about 6 – 8 weeks until lost to follow-up.

IV. Discussion

Although bowel preparation (MBP or On-table lavage) before left sided colorectal surgery has become routine, there is a paucity of scientific evidence to support this practice [2,12]. Traditionally, MBP was carried out on patients with partial left colonic obstruction that were to undergo surgery by using enemas in combination with oral laxatives to evacuate feaces from the colon. But more recently, powerful oral cathartics: sodium phosphate and polyethylene glycol have been discovered which provides superior cleansing when

compared to the traditional methods by inducing diarrhoea which cleanses the bowel of solid faeces. These are now being used pre-operatively by most surgeons in preparing their patients for colorectal surgeries. In complete obstruction however, OTL is the method of choice used to rid the proximal colon of solid faeces intraoperatively after resection; in which a catheter is inserted into the caecum through an appendiceal stump after an appendectomy. Normal saline is then rushed antegradely through the bowel, thus ridding the proximal colon of its faecal content. During this period also, the cut ends of the bowels are exteriorised to ensure less spillage and wound contamination. However, recent improvement in morbidity and mortality rates of bowel surgery resulting from advances in peri-operative care and routine use of antibiotic prophylaxis[13], in conjuction with recent experience with primary repair of colonic injuries by trauma surgeons from Europe and Asia[3,14], describing elective operations on the left colon done safely without pre- / intra-operative bowel lavage, have caused a re-consideration of the true value of cleansing the colon beforeanastomosis[2,9,10]. Also studies have shown that because the colonocytes receive their nutrition from intra luminal free fatty acids produced by fermentation from colonic bacteria, lavaging the colon, may actually be detrimental to the healing of a colonic anastomosis[14].

In this study, we recorded a post-operative infectious complications in 4 patients (9.52%) and a leaked anastomosis in one patient (2.38%). There was no intra-abdominal abscess collection and peritonitis.

All wound infections resolved with the re-commencement of antibiotics therapy. The leaked anastomosis was re-laparatomized, the dehisced portion repaired and the anastomosis was then protected with an ileostomy. The latter was closed after 8 weeks. This result is in keeping with other workers in the field; AaamerNaseer et al[9] recorded four (4) patients with superficial wound infection and one mortality, while working on 30 patients' with acute sigmoid volvulus in a local setting. Mumtaz Khan et al[10] also working from a local setting in Parkistan on 80 patients with acute sigmoid volvulus, recorded superficial wound infections in 16 (20%) patients, no anastomotic leakage and no mortality in their series. From our study, we may wish to emphasize that the critical risk factors in colonic dehiscence, after anastomosis is the solid faecal matter (SFM); which if carefully removed by simple manual decompression (milking) would render the anastomosis safe. This claim is further buttressed by the fact that all right colectomies with either ileo-colic or colo-colic anastomosis are not usually protected by proximal ileostomies, yet healing often occurs even though the anastomosis is bathed by watery faecal matter[14,21]. Naraynsinghet al[15] reported a prospective series of 58 unselected patient with left colonic anastomosis without a proximal diverting stoma. There was a case of anastomotic leakage andone mortality, unrelated to sepsis.

Till date, a number of authors have reported series of patients who under-went emergency left sided colon resection and anastomosis without intra-operative colonic lavage or a protecting proximal stoma and results are encouraging[11,16,17,18,19,20].

We therefore wish to state that simple manual decompression of the colon to expelthe SFM and exteriorizing the cut ends of the bowel while doing this, do prevent both faecal spillage into the peritoneum with its attendant peritonitis and wound contamination.

This currently favoured treatment modality is safe and effective. It could be adopted in local setting and in developing countries for its immense socio-economic benefits; as the financial burden involved in staged procedures are not only high, also colostomies are often not acceptable for socio-cultural reasons.

V. Conclusion

Resection and primary anastomosis of` left colonic obstruction can safely be performed without any form of bowel preparation or a diverting protecting colostomy. It has the merit of being a shorter and simpler procedure to perform without increasing the morbidity or mortality rates of the patients.

Table I (A & B) : Causes of the Left Colon Obstruction in the Study

A. Tumour of Left Colon and Rectum

AGE DISTRIBUTION (YRS)	MALE	FEMALE	PERCENTAGES
20-29	2	0	7.69%
30-39	3	1	15.38%
40-49	2	4	23.08%
50-59	5	3	30.77%
60-69	4	1	19.23%
>70	1	0	3.85%
TOTAL	17	9	100%

Male : Female = 1.8 : 1 Mean = 49.5

B. Acute Sigmoid Volvulus

Age Distribution(YRS)	Male	Female	Percentages
60-69	2	0	12.50%
70-79	7	2	56.25%
80-89	3	2	31.25%
TOTAL	12	4	100%

Male : Female = 3 : 1 Mean = 76.4

Table II : Analysis of Post-Operative Outcome

	Number of Patients	Percentages
Superficial wound infection	4	9.52%
Anastomotic leakage	1	2.38%
Intra abdominal abcess	0	-
Wound deliscence	0	-
Total of patients	42	

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A Study on the Receptor Status in Carcinoma Breast

By Dr. Ajil Jospeh, Dr. Prathvi Shetty & Dr. Praveen Kumar K

Father Muller Medical College, India

Abstract- *Methods:* 80 patients were included in this study, who were diagnosed with carcinoma breast and underwent surgery followed by receptor status analysis. This is a retrospective study wherein the receptor status of these patients were analysed to assess the incidence and type of receptor involved. Receptors studied include ER, PR and Her 2neu.

Result: from the above study it was concluded that, the percentage of patients with ER+/PR+ were 41.3%, ER+/PR-were 1.3% , ER-/PR+ were 1.3%, ER-/PR- were 53.8% and percentage of Her2neu positive were 8.8% while Her2neu negative were 91.3%. Percentage of patients with triple negative receptor status was 62.5%.

Conclusion: from this study it can be concluded that most patients presenting to our hospital have ER, PR and Her 2neu NEGATIVE STATUS which has a poor prognosis and high mortality.

GJMR-I Classification: *NLMC Code: WP 460*

Strictly as per the compliance and regulations of:

A Study on the Receptor Status in Carcinoma Breast

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Conclusion: from this study it can be concluded that most patients presenting to our hospital have ER, PR and Her 2neu NEGATIVE STATUS which has a poor prognosis and high mortality.

I. Introduction

Breast cancer is the most common cancer in women and is the leading cause of death for women aged 20 to 59 years.[(1),(2)] It accounts for 26% of all newly diagnosed cancers in females and is responsible for 15% of the cancer-related deaths in women.[(2)]

In the 1970s, the probability that a woman in the United States would develop breast cancer was estimated at 1 in 13; in 1980 it was 1 in 11; and in 2004 it was 1 in 8. Cancer registries in Connecticut and upper New York State document that the age-adjusted incidence of new breast cancer cases had increased since the mid-1940s. [(3)]

The median age of presentation was 49 years of age. Infiltrating ductal carcinoma was the commonest histopathological variant (81.40%) followed by medullary carcinoma (10.36%) and mucinous carcinoma (2.74%). Triple negative were found to be the commonest group comprising 39.4% of all the cases followed by ER and PR both positive.[(4)] ER/PR negative patients are associated with higher mortality.

The aim of this study is to assess the receptor status of patients with carcinoma breast who presented to father Mullermedical college in the last 1yr as I the recent past there is shift in receptor status to triple negative, which is associated with poor prognosis.

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II. Materials and Methods

In this study, 80 patients were included, who underwent surgery for carcinoma breast. The specimen was subjected to histopathological examination to confirm the diagnosis and later was analysed for the receptor status. The receptor studied were ER, PR and Her 2 neu. They were analysed based on the frequency of incidence.

III. Results

The receptor status was tabulated based on frequency and percentage of each receptor in relation to the total study population. They were divided into 5 categories as shown below.

Table 1 : ER +ve and PR +ve

	Frequency	Percent
NO	47	58.8
YES	33	41.3
Total	80	100.0

Table 2 : ER +veand PR –ve

	Frequency	Percent
NO	79	98.8
YES	1	1.3
Total	80	100.0

Table 3 : ER –ve and PR +ve

	Frequency	Percent
NO	79	98.8
YES	1	1.3
Total	80	100.0

Table 4 : ER –ve and PR –ve

	Frequency	Percent
NO	37	46.3
YES	43	53.8
Total	80	100.0

Table 5 : Her 2 neu

	Frequency	Percent
NIL	73	91.3
YES	7	8.8
Total	80	100.0

Among the 80 patients studied, the percentage of patients with ER+/PR+ were 41.3%, ER+/PR- were 1.3% , ER-/PR+ were 1.3%, ER-/PR- were 53.8% and

percentage of Her2neu positive were 8.8% while Her2neu negative were 91.3%. Percentage of patients with triple negative receptor status was 62.5%.

IV. Discussion

In our study, 80 patients were included who underwent surgery for carcinoma breast followed by receptor status analysis. Knowing the receptor status is of paramount importance as the treatment and prognosis of the patient depends on that. In India, there is and increased incidence of triple negative receptor status which has poor prognosis. Hence this study was undertaken in patients admitted in Father Muller medical college in the last 1yr with carcinoma breast.

According to this study, ER and PR negative was the commonest with 53.8%. Her 2neu negative patients were also high which was about 91.3%.second most common was ER and PR positive which was about 41.3%. triple negative receptor i.e ER and PR negative with Her 2neu negative was found to be high which was about 62.5%.

Guinee VF stated that breast cancer is the most common cause of death in women aged 20-59yrs.[1]

Jamel A et al observed that breast cancer accounts for 26% of all newly diagnosed cancers in females and is responsible for 15% of the cancer-related deaths in women.[2]

F.Charles Brunicardi et al gave a probable statistics about the rise in incidence of breast cancer over the last three decades.[3]

In another study it was observed that the median age of presentation was 49yrs. They also calculated the commonest type of carcinoma breast and the incidence of hormone receptor status.[4]

A study in southeastern turkey concluded that the commonest receptor which is positive is PR followed by ER and HER2.[5] this finding was contrary to the finding in our study.

In a study by Akthar MI, 87% of the patients were triple negative, who had locally advanced tumor.[6]

According to Lisa K Dunnwald, when compared to women with ER+/PR+ tumors, women with ER+/PR-, ER-/PR+, or ER-/PR- tumors experienced higher risks of mortality.[7]

Caldarella A stated in her study that, Out of 1487 patients 70.3% were luminal A subtype (ER/PR + HER2-), 15.6% luminal B (ER/PR + HER2+), 8.1% triple negative (ER/PR-HER2-), 6.0% HER2+ (ER/PR-HER2+). The 3 year survival rates were 93.3%, 89.5%, 86.3%, 82.7% respectively.[8]

V. Conclusion

From this study it can be concluded that, ER and PR negativity and her 2neu positivity are high among the population in Mangalore. The incidence of triple negativity, which is associated with high mortality is also high among the patients presented in Father Muller Medical College in the last 1yr. this finding correlate well with the findings in other parts of India where there is shift in receptor status toward triple negativity. Such patients require aggressive management of the disease for better survival.

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Cardiorespiratory Fitness of Young Malawian Adults

By Enock Madalitso Chisati & Enipher Betenigo

University of Malawi, Malawi

Abstract- *Background:* The interpretation of cardiopulmonary fitness values is based on previously published standard reference values. In other situations, this may cause considerable inaccuracies since cardiorespiratory fitness in a specific population is determined by physical activity habits, geographic living area, body composition, genetics, and other factors, thus, reference values may differ significantly among various populations. The objective of this study was to determine cardiorespiratory values measured as maximal oxygen uptake for young Malawian adults and compare these values with the reference values established for other foreign populations.

Methods: This was a cross sectional study involving 133 (62 males and 71 females) apparently healthy young adults aged from 20 to 29 years randomly selected from the Malawian population. Participants performed the Rockport submaximal treadmill exercise test. Measures of body weight, post-exercise heart rate and time to walk one mile were obtained and used to predict VO2max as a measure of cardiorespiratory fitness.

Results: Mean VO_{2max} was 53.9±12.5 $mL.kg^{-1}.min^{-1}$ for males and 38.8 for females indicating excellent cardiores-piratory fitness for males and good cardiorespiratory fitness for females according to the cooper institute data published by the American College of Sports Medicine (ACSM).

Conclusion: Cardiorespiratory fitness measured as VO_{2max} for apparently healthy young Malawian adults have been provided and appear to be within similar ranges as those of some other foreign populations.

GJMR-I Classification: *NLMC Code: WI 480*

Strictly as per the compliance and regulations of:

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Conclusion: Cardiorespiratory fitness measured as VO_{2max} for apparently healthy young Malawian adults have been provided and appear to be within similar ranges as those of some other foreign populations.

I. Introduction

Cardiorespiratory fitness refers to the ability of the circulatory and respiratory systems to supply oxygen to skeletal muscles during sustained physical activity and eliminate fatigue products after supplying the oxygen. Cardiorespiratory fitness is commonly described in terms of the parameters ventilatory anaerobic threshold (VAT) and maximal oxygen uptake (VO_{2max}). VAT defines a transition between aerobic and anaerobic metabolism and is closely linked to regular exercise training. VAT is therefore used as an additional parameter to assess cardiorespiratory fitness[1]. VO_{2max} is the highest rate of oxygen uptake obtained during strenuous, dynamical work involving large muscle groups.[2] VO_{2max} is the major parameter used to describe physical capacity[2–4]. Although VO_{2max} is not the sole determinant of cardiorespiratory fitness, it is recognized as the gold standard measurement for cardiorespiratory fitness of an individual[4]. Important information about gas exchange responses that can explain heart, lung, peripheral vascular, pulmonary vascular, and muscle abnormalities in individuals can be obtained from VO_{2max} measurements[5].Maximal oxygen uptake can be used to design an exercise prescription for aerobic training in individuals; identify and refer patients with subtle abnormalities of gas exchange for further diagnostic studies to exclude early infectious complications; and evaluate physiological improvements resulting from an aerobic exercise training program. Thus, VO_{2max} quantifies an individual's exercise capacity and provides valuable diagnostic and prognostic information about the cardiorespiratory system.

There is evidence that VO_{2max} is clearly associated with levels of conventional cardiovascular risk factors even in people considered to be fit[6].To interpret results of VO_{2max}, reference values are required. Reference values for VO_{2max} in different populations have been reported[1,6–9],however no data exists for reference values for Malawian young adults. The aim of this study therefore was to determine mean VO_{2max} values for young Malawian adults and compare these values with the reference values established for other foreign populations.

II. Methods

a) Study design Study sample and recruitment

This was a cross sectional study in which 62 male and 71 female young adults (n = 133) aged 20 to 29 years participated. All participants were randomly recruited from the general population within communities around Blantyre, Malawi. Participants were contacted and asked for permission by the researcher who explained the nature of the study and assessed eligibility of those who agreed to participate. Informed consent was obtained from all eligible and willing individuals to participate in the study,which was approved by the University of Malawi's College of Medicine Research and Ethics Committee (COMREC). The study is in conformity with the laws of Malawi and the Declaration of Helsinki.

b) Test equipment

A motorized treadmill (Trojan Marathon 200) interfaced with a microprocessor to control speed and

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time was used to conduct the exercise test. A Polar heart rate monitor (FT 4) was used to obtain post-exercise heart rate and time to walk a one mile equivalent on the treadmill. A body weight scale and a drop-down tape measure were used to obtain height and body weight measurements respectively.

c) Variables

i. *Height and body weight*

Height and body weight measurements for each participant were collected using a body weight scale and tape measure before the exercise test. Height measurements were obtained using a drop down tape measure fixed at about two metres on a wall. The participants removed their shoes before taking the measurement and stood with their backs against a wall while facing directly forward. The backs of their feet, calves, buttocks, upper backs and the backs of their heads were all in contact with the wall. The drop-down measuring device was lowered until it rested gently on the top of each participant's head, after which the measurements were recorded. To obtain body weight measurements, the scale was set to zero before each participant stepped on it. The participants were asked to remove any heavy items from their pockets such as keys and any heavy clothing such as jackets, woolen jerseys, and shoes before stepping on the scale. Then the participants stepped on the scale and stayed still for a short time while facing straight ahead, after which the measurement was recorded. Height and body mass measurements were used to calculate body mass index (BMI) scores.

ii. *VO_{2max} and post-exercise heart rate*

Maximal oxygen uptake (VO_{2max}) was calculated as a measure of cardiorespiratory fitness. VO_{2max} was predicted from the Rockport one mile submaximal exercise test[10]. The Rockport one mile submaximal exercise test has been proven to be a reliable and valid protocol in predicting VO_{2max} in untrained subjects[11,12].In addition, the Rockport one mile submaximal test lessens problems of exhaustion and injuries associated with exercise testing[12]. Maximal oxygen uptake scores were predicted from the Rockport one mile walking test formula: *VO_{2max} = 132.853 – (0.0769 x body mass) – (0.3877 x age) + (6.315 x gender) –(3.2649 x time) – (0.1565 x HR).*

The procedure of the test started with a warm up of about eight to ten minutes. The warm up was aimed at familiarizing the participants with treadmill walking and also to ensure safety. After warming up, the participants were asked to walk 1.6 kilometres (one mile) as fast as possible on a motorized treadmill, without jogging or running. The participants' post-exercise heart rates (PoExHR) and times to complete the one mile distance were recorded using a Polar heart rate monitor. To obtain post-exercise heart rates, the participants each wore a Polar H7 Bluetooth smart heart rate sensor secured with a strap around the chest and a heart rate monitor watch on the wrist while exercising. The sensor, which contains a transmitter rested below the breast, detected the electrical activity of the heart and transmitted the information to the monitor watch where it was displayed. Time taken by each participant to complete one mile was also displayed on the monitor watch and was recorded immediately after the exercise test.

The treadmill test was performed twice by each participant to obtain an average heart rate for calculating VO_{2max}. An active recovery period of two to five minutes was allowed immediately after the first test in preparation for the second test. The exercise tests were done individually. Each participant was scheduled for his or her own time for the exercise.

d) Data analysis

IBM SPSS 21 was used to analyse the data. Descriptive statistics with mean and standard deviation were used to characterize data variables. Linear regression analysis was applied to analyse correlations between age and VO_{2max} as well as age and time to complete the one mile equivalent on a treadmill. All statistical tests were two - sided and *p* values of ≤ 0.05 were considered statistically significant.

III. Results

Baseline characteristics of participants are presented in Table 1. The mean value for VO_{2max} in Malawian young adults was higher in males compared to females (53.9 $mL{\cdot}kg^{-1}{\cdot}min^{-1}$ versus 38.8$mL{\cdot}kg^{-1}{\cdot}min^{-1}$) (Table 2). When compared to other foreign populations, VO_{2max} of young Malawian males was comparable to that of young Norwegian males (53.9 $mL{\cdot}kg^{-1}{\cdot}min^{-1}$ versus 54.0$mL{\cdot}kg^{-1}{\cdot}min^{-1}$), whereas VO_{2max} for young Lithuanian males was lower (40.4$mL{\cdot}kg^{-1}{\cdot}min^{-1}$) compared to both Malawian and Norwegian males. Norwegian females had a higher VO_{2max} mean value (42.9 $mL{\cdot}kg^{-1}{\cdot}min^{-1}$) compared to both Malawian females (38.8 $mL{\cdot}kg^{-1}{\cdot}min^{-1}$) and Lithuanian females (34.7 $mL{\cdot}kg^{-1}{\cdot}min^{-1}$) (Table 3).

VO_{2max} was inversely and linearly related to age in both Malawian males ($VO_{2max} = 100.161 - 1.970 \times \mathbf{Age}$) and females ($VO_{2max} = 72.025 - 1.339 \times \mathbf{Age}$). An increase of 1 year in age was related to an average decrease of 1.97$mL{\cdot}kg^{-1}{\cdot}min^{-1}$ in VO_{2max} for males and 1.339 $mL{\cdot}kg^{-1}{\cdot}min^{-1}$ in VO_{2max} for females (Figure 1). About 53% of an individual's decrease in VO_{2max} could be explained by a related increase in age for males ($R^2 = 0.538$). Whereas in females, a decrease of 37% in an individual's VO_{2max} could be explained by a related increase in age ($R^2 = 0.378$). Similarly, VO_{2max} was inversely and linearly related to time to complete the 1 mile test in both male ($VO_{2max} = 70.402 - 0.133 \times PoExHR$)and female ($VO_{2max} = 56.836 - 0.148 \times PoExHR$) Malawian young adults. An increase of 1

minute in time to complete 1 mile distance was related to an average decrease of 0.133 $mL.kg^{-1}.min^{-1}$ in $VO_{2max}$for males and 0.148 $mL.kg^{-1}.min^{-1}$for females (Figure 2). About 5% of an individual's decrease in VO_{2max} could be explained by a related increase in time to complete 1 mile [R^2(males) = 0.057;R^2(females) = 0.051].

Table 1 : Baseline Characteristics of Participants

	All Subjects (n=133)	Male Subjects (n=62)	Female Subjects (n=71)
Age (yrs)	24.2 ± 5.2	23.5 ± 4.7	24.8 ± 5.5
Height (cm)	161.9 ± 7.9	167.6 ± 6.5	156.9 ± 5.3
Weight (kg)	58.5 ± 9.2	60.8 ± 7.9	56.4 ± 9.8
BMI (kg/m^2)	22.3 ± 3.1	21.6 ± 2.4	22.9 ± 3.5

All data are in mean ± SD; SD = standard deviation; BMI = body mass index.

Table 2 : Exercise Response Parameters Stratified by Gender

	Total (n = 133)	Male (n = 62)	Female (n=71)
VO_{2max} ($mL{\cdot}kg^{-1}{\cdot}min^{-1}$)	45.9±14.4	53.9±12.5	38.8±12.0
PoExHR (bpm)	122.7±20.3	123.7±22.4	121.8±18.4
1 mile time (min)	15.8±3.5	14.2±3.2	17.0±3.2

All data are in mean ± SD; $mL{\cdot}kg^{-1}{\cdot}min^{-1}$= millilitres per kilogram per minute, PoExHR = post-exercise heart rate, 1mile time = time taken to walk 1 mile distance, bpm = beats per minute.

Table 3 : Comparison of Mean Maximum Oxygen Uptake (VO_{2max}; $mL{\cdot}kg^{-1}{\cdot}min^{-1}$) Values for Men and Women in Our Study and Normative Values for Other Foreign Populations

	Age	Male	Female
Our Study (Malawian population)	20 – 29	53.9±12.5	38.8±12.0
Lithuanian Population	20 – 29	40.4±5.8	34.7±6.8
Norwegian Population	20 – 29	54.0±8.7	42.9±7.6

All data are in mean ± SD

Table 4 : Comparison of Mean Maximum Oxygen Uptake (VO_{2max}; $mL{\cdot}kg^{-1}{\cdot}min^{-1}$) Values for Men and Women in Our Study and Normative Values by Percentiles Reported by the Cooper Institute.

	Our Study		Cooper Institute data		
	mean±SD	95%CI	20^{th}	50^{th}	80^{th}
Male	53.9±12.5	51.0 – 56.9	38.1	43.9	51.1
Female	38.8±12.0	36.0 – 41.8	31.6	37.4	44.0

20^{th} and 80^{th} percentile values represent poor and excellent cardiorespiratory fitness categories, respectively, as published by the American College of Sports Medicine (ACSM)[13]

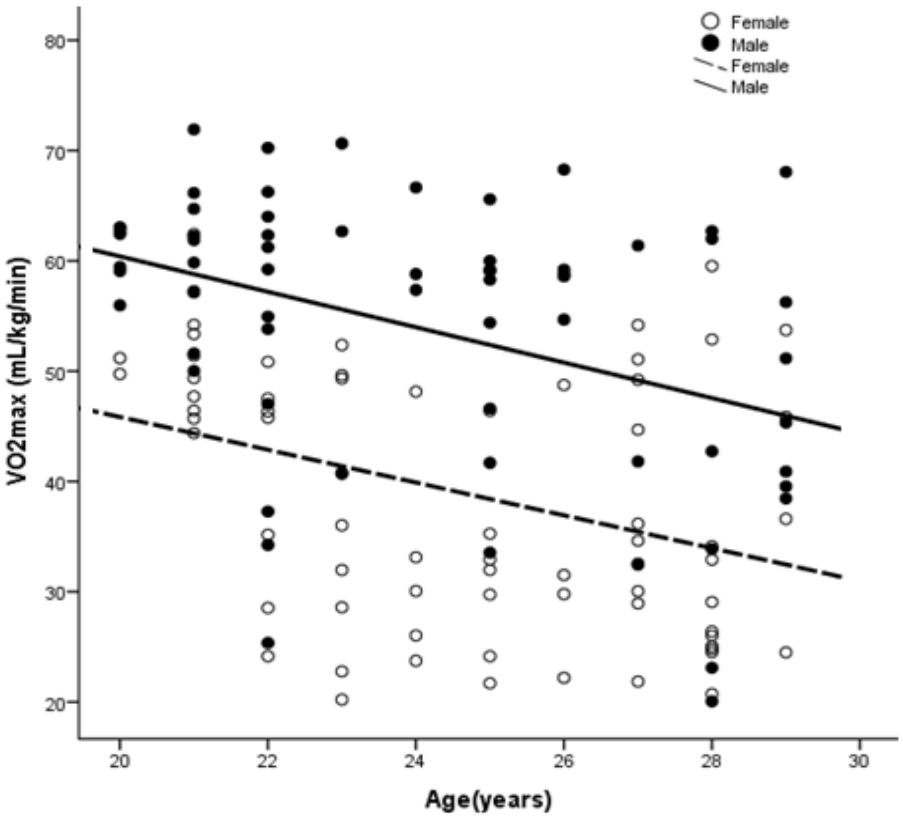

Figure 1: Relationship Between Age and VO_{2max} in Both Males and Females: $VO_{2max}(\text{Males}) = 29.18 - 0.095 \times \text{Age}$ ($R^2 = 0.153$) And $VO_{2max}(\text{Females}) = 27.658 - 0.076 \times \text{Age}$ ($R^2 = 0.113$)

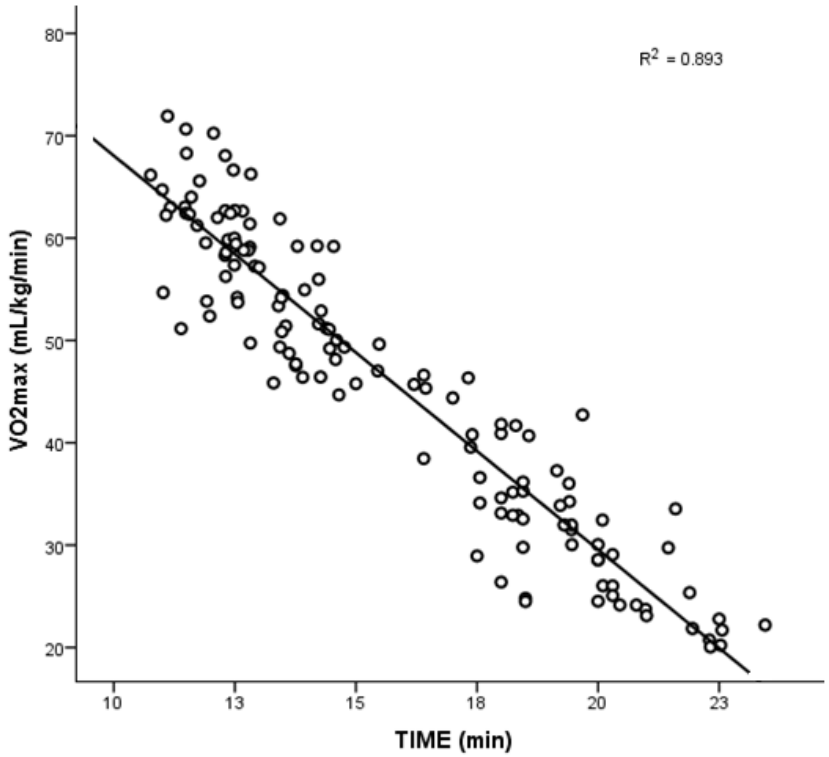

Figure 2 : Association Between VO_{2max} and Time to Complete 1 Mile Distance in Both Male and Female Young Adults ($VO_{2max} = 1.07 - 3.85 \times \text{Time}$, $R^2 = 0.89$).

IV. Discussion

The purpose of the study was to determine mean VO_{2max} values for young Malawian adults aged20 to 29 years. Results of this study present VO_{2max} reference values for young Malawian adults from a randomly selected sample of apparently healthy young men and women (Table 2). It has been reported that women achieveVO_{2max} scores of about 15% to 30% below those of male counterparts in healthy populations[3,14,15]. The present study has demonstrated thatVO_{2max} relative to body mass was28% higher in young Malawian men than in women. Findings from the present study are consistent with previous studies that found lowerVO_{2max} in females compared with males in healthy participants[15,16].Lower values of VO_{2max} in women are a result of lower haemoglobin and blood volume, smaller stroke volume and smaller muscle mass compared to males[3].

In relation to cardiorespiratory fitness values for other foreign populations, the present study has revealed that young Malawian and Norwegian males have almost similar VO_{2max} values, while Malawian females have lowerVO_{2max} values of about 9% compared to Norwegian females (Table 3).The difference in VO_{2max} between Malawian and Norwegian females can partly be explained by a smaller difference of about 21% between male and female Norwegians[6] compared to a slightly higher difference in VO_{2max} of 28% between Malawian males and females. In addition, it was observed that young Malawian males had a higher VO_{2max} of about 25% compared to young Lithuanian males. Similarly young Malawian females had a slightly higherVO_{2max} of about 11% compared to young Lithuanian females. It has been reported that VO_{2max} in healthy Lithuanians is approximately 9 – 22% lower compared to other populations[8] which could somewhat explain the relatively low VO_{2max} values compared to young Malawian adults. With respect to normative cardiorespiratory fitness values published by the American College of Sports Medicine (ACSM)[13], data provided by the Cooper Institute, young Malawian men in the current study fell above the 80th percentile of VO_{2max} which translates to excellent cardiorespiratory fitness. On the other hand, young Malawian females fell slightly above the 50th percentile of VO_{2max} which translates to good cardiorespiratory fitness. This impressive cardiorespiratory fitness could be attributed to physical activity habits of young Malawians such as walking long distances to work-places which increase their physical capacity.

The age related decline in cardiorespiratory fitness has been demonstrated in a number of investigations [1,6,8]. In the present study, the age related decline in VO_{2max} was 0.09mL·kg^{-1}·min^{-1} per year in males and 0.11 mL·kg^{-1}·min^{-1} in females (Figure 1). A decline in VO_{2max} with increasing age has been attributed to central (cardiac) and peripheral (circulation and oxygen transport) factors[17]. Central and peripheral factors in VO_{2max} decline with aging have been attributed to several mechanisms. Among others, mechanisms such as the aging process itself (senescence); the decline of cardiac function; an impaired efficiency of oxygen extraction and utilization; a decreased muscle mass concurrent with increasing body fat; superimposed pathological processes; a decreased volume and efficiency of physical activity; and hereditary factors have been proposed to contribute to a decline in VO_{2max} with age[18].However, despite the apparent effect of age on aerobic endurance, strong evidence indicate that habitual physical activity regardless of age exerts greater influence on aerobic endurance than chronological age per se[17].Contrary to other western studies that reported a somewhat higher decline in VO_{2max} of approximately 0.34 – 0.36 mL·kg^{-1}·min^{-1} per year for males and 0.30 – 0.32 mL·kg^{-1}·min^{-1} per year in females within the 20 – 29 year age range[8,19], the present study has revealed a smaller decline in VO_{2max} of 0.09mL·kg^{-1}·min^{-1} per year in males and 0.11 mL·kg^{-1}·min^{-1} in females. The smaller age related decline in VO_{2max} for both males and females in the present study could partly be explained by the active lifestyle habits among Malawian populations compared to Western populations. In Malawi, a large percentage of the population is involved in manual labour and agricultural operations which demand considerable physical capacity. Lifestyle activities such as walking long distances to work-places, pushing heavy levers in industries, land preparation and post-harvest processing of farm produce increases physical capacity among Malawians, which may result in increased aerobic endurance compared to Western populations.

The study revealed a strong inverse linear association between VO_{2max} and time to complete the1 mile equivalent (exercise duration) on a treadmill in both male and female young Malawian adults (Figure 2). Almost 89% of an individual's variation in VO_{2max} could be explained by a related change in time to complete 1 mile equivalent. Exercise duration is one of the parameters that determine the intensity of an exercise. Exercise intensity can be manipulated by reducing the time to complete an exercise bout thus increasing the intensity of the exercise. Results from this study are consistent with other studies that revealed higher VO_{2max} scores associated with higher aerobic intensities[20–22]. VO_{2max} is considered to be a valid tool for measuring exercise intensity and a predictor of long time health[23], however the method for obtaining VO_{2max} is complicated and not feasible in a limited resource rural clinical setting. Since VO_{2max} generally correlates significantly with maximum heart rate (HRmax)[24], VO_{2max} can easily be elucidated from HRmax measures. HRmax measurements to

predict VO_{2max} are more practical in a limited resource rural clinical setting since they could be obtained through pulse rate measurements. However measuring HRmax through pulse during exercise poses a challenge. A strong linear association between VO_{2max} and time to complete the 1 mile equivalent revealed from the current study suggests that the 1 mile time is a good proxy for VO_{2max} and may serve as a valid field test in limited resource settings like Malawi where treadmills may not be available. However further research on the same is required to validate this claim.

V. Study Limitations

The study has limitations in terms of generalizability to the total young adult population in Malawi. Like any other age group, young adults are a very heterogeneous population. While the proposed study sample was quite diverse, the fact remains that certain segments of the young adult population in Malawi, like those from remote and rural areas, were not included. In addition, any time a data collection instrument is used, results are subject to reliability and validity of the instrument. Although information about the validity and reliability of Rockport 1 mile submaximal exercise test to predict VO_{2max} is known, the test has some limitations. Since participants had to walk as fast as possible, the accuracy of the test in predicting VO_{2max} depended on the pacing ability and motivation of the participant. Only subsequent research with other audiences from a wide range of geographical areas and other instruments will help further our understanding of cardiorespiratory fitness of young Malawian adults.

VI. Conclusion

The study offers cardiorespiratory fitness values measured as VO_{2max} for apparently healthy young Malawians aged 20 to 29 years. Results from this study show that VO_{2max}values for young Malawian adults seem to be within similar ranges as those of some other foreign populations. With respect to VO_{2max} values published by the American College of Sports Medicine (ACSM)[13], VO_{2max} values of young Malawian males fell slightly above the 80th percentile indicating excellent cardiorespiratory fitness while those of young Malawian females fell slightly above the 50th percentile indicating good cardiorespiratory fitness. Rehabilitation clinics and exercise testing laboratories in Malawi may use these results in promoting physical activity in the general population as well as evaluating exercise capacity for young Malawian adults.

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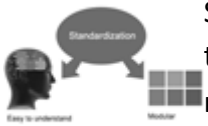

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Papers: These are reports of significant research (typically less than 7000 words equivalent, including tables, figures, references), and comprise:

(a)Title should be relevant and commensurate with the theme of the paper.

(b) A brief Summary, "Abstract" (less than 150 words) containing the major results and conclusions.

(c) Up to ten keywords, that precisely identifies the paper's subject, purpose, and focus.

(d) An Introduction, giving necessary background excluding subheadings; objectives must be clearly declared.

(e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition; sources of information must be given and numerical methods must be specified by reference, unless non-standard.

(f) Results should be presented concisely, by well-designed tables and/or figures; the same data may not be used in both; suitable statistical data should be given. All data must be obtained with attention to numerical detail in the planning stage. As reproduced design has been recognized to be important to experiments for a considerable time, the Editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned un-refereed;

(g) Discussion should cover the implications and consequences, not just recapitulating the results; conclusions should be summarizing.

(h) Brief Acknowledgements.

(i) References in the proper form.

Authors should very cautiously consider the preparation of papers to ensure that they communicate efficiently. Papers are much more likely to be accepted, if they are cautiously designed and laid out, contain few or no errors, are summarizing, and be conventional to the approach and instructions. They will in addition, be published with much less delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and to make suggestions to improve briefness.

It is vital, that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

Format

Language: The language of publication is UK English. Authors, for whom English is a second language, must have their manuscript efficiently edited by an English-speaking person before submission to make sure that, the English is of high excellence. It is preferable, that manuscripts should be professionally edited.

Standard Usage, Abbreviations, and Units: Spelling and hyphenation should be conventional to The Concise Oxford English Dictionary. Statistics and measurements should at all times be given in figures, e.g. 16 min, except for when the number begins a sentence. When the number does not refer to a unit of measurement it should be spelt in full unless, it is 160 or greater.

Abbreviations supposed to be used carefully. The abbreviated name or expression is supposed to be cited in full at first usage, followed by the conventional abbreviation in parentheses.

Metric SI units are supposed to generally be used excluding where they conflict with current practice or are confusing. For illustration, 1.4 l rather than 1.4 × 10-3 m3, or 4 mm somewhat than 4 × 10-3 m. Chemical formula and solutions must identify the form used, e.g. anhydrous or hydrated, and the concentration must be in clearly defined units. Common species names should be followed by underlines at the first mention. For following use the generic name should be constricted to a single letter, if it is clear.

Structure

All manuscripts submitted to Global Journals Inc. (US), ought to include:

Title: The title page must carry an instructive title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) wherever the work was carried out. The full postal address in addition with the e-mail address of related author must be given. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining and indexing.

Abstract, used in Original Papers and Reviews:

Optimizing Abstract for Search Engines

Many researchers searching for information online will use search engines such as Google, Yahoo or similar. By optimizing your paper for search engines, you will amplify the chance of someone finding it. This in turn will make it more likely to be viewed and/or cited in a further work. Global Journals Inc. (US) have compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

Key Words

A major linchpin in research work for the writing research paper is the keyword search, which one will employ to find both library and Internet resources.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy and planning a list of possible keywords and phrases to try.

Search engines for most searches, use Boolean searching, which is somewhat different from Internet searches. The Boolean search uses "operators," words (and, or, not, and near) that enable you to expand or narrow your affords. Tips for research paper while preparing research paper are very helpful guideline of research paper.

Choice of key words is first tool of tips to write research paper. Research paper writing is an art.A few tips for deciding as strategically as possible about keyword search:

- One should start brainstorming lists of possible keywords before even begin searching. Think about the most important concepts related to research work. Ask, "What words would a source have to include to be truly valuable in research paper?" Then consider synonyms for the important words.
- It may take the discovery of only one relevant paper to let steer in the right keyword direction because in most databases, the keywords under which a research paper is abstracted are listed with the paper.
- One should avoid outdated words.

Keywords are the key that opens a door to research work sources. Keyword searching is an art in which researcher's skills are bound to improve with experience and time.

Numerical Methods: Numerical methods used should be clear and, where appropriate, supported by references.

Acknowledgements: Please make these as concise as possible.

References

References follow the Harvard scheme of referencing. References in the text should cite the authors' names followed by the time of their publication, unless there are three or more authors when simply the first author's name is quoted followed by et al. unpublished work has to only be cited where necessary, and only in the text. Copies of references in press in other journals have to be supplied with submitted typescripts. It is necessary that all citations and references be carefully checked before submission, as mistakes or omissions will cause delays.

References to information on the World Wide Web can be given, but only if the information is available without charge to readers on an official site. Wikipedia and Similar websites are not allowed where anyone can change the information. Authors will be asked to make available electronic copies of the cited information for inclusion on the Global Journals Inc. (US) homepage at the judgment of the Editorial Board.

The Editorial Board and Global Journals Inc. (US) recommend that, citation of online-published papers and other material should be done via a DOI (digital object identifier). If an author cites anything, which does not have a DOI, they run the risk of the cited material not being noticeable.

The Editorial Board and Global Journals Inc. (US) recommend the use of a tool such as Reference Manager for reference management and formatting.

Tables, Figures and Figure Legends

Tables: Tables should be few in number, cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g. Table 4, a self-explanatory caption and be on a separate sheet. Vertical lines should not be used.

Figures: Figures are supposed to be submitted as separate files. Always take in a citation in the text for each figure using Arabic numbers, e.g. Fig. 4. Artwork must be submitted online in electronic form by e-mailing them.

Preparation of Electronic Figures for Publication

Even though low quality images are sufficient for review purposes, print publication requires high quality images to prevent the final product being blurred or fuzzy. Submit (or e-mail) EPS (line art) or TIFF (halftone/photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Do not use pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings) in relation to the imitation size. Please give the data for figures in black and white or submit a Color Work Agreement Form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution (at final image size) ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs) : >350 dpi; figures containing both halftone and line images: >650 dpi.

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Figure Legends: Self-explanatory legends of all figures should be incorporated separately under the heading 'Legends to Figures'. In the full-text online edition of the journal, figure legends may possibly be truncated in abbreviated links to the full screen version. Therefore, the first 100 characters of any legend should notify the reader, about the key aspects of the figure.

6. AFTER ACCEPTANCE

Upon approval of a paper for publication, the manuscript will be forwarded to the dean, who is responsible for the publication of the Global Journals Inc. (US).

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The corresponding author will receive an e-mail alert containing a link to a website or will be attached. A working e-mail address must therefore be provided for the related author.

Acrobat Reader will be required in order to read this file. This software can be downloaded

(Free of charge) from the following website:

www.adobe.com/products/acrobat/readstep2.html. This will facilitate the file to be opened, read on screen, and printed out in order for any corrections to be added. Further instructions will be sent with the proof.

Proofs must be returned to the dean at dean@globaljournals.org within three days of receipt.

As changes to proofs are costly, we inquire that you only correct typesetting errors. All illustrations are retained by the publisher. Please note that the authors are responsible for all statements made in their work, including changes made by the copy editor.

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Before start writing a good quality Computer Science Research Paper, let us first understand what is Computer Science Research Paper? So, Computer Science Research Paper is the paper which is written by professionals or scientists who are associated to Computer Science and Information Technology, or doing research study in these areas. If you are novel to this field then you can consult about this field from your supervisor or guide.

TECHNIQUES FOR WRITING A GOOD QUALITY RESEARCH PAPER:

1. Choosing the topic: In most cases, the topic is searched by the interest of author but it can be also suggested by the guides. You can have several topics and then you can judge that in which topic or subject you are finding yourself most comfortable. This can be done by asking several questions to yourself, like Will I be able to carry our search in this area? Will I find all necessary recourses to accomplish the search? Will I be able to find all information in this field area? If the answer of these types of questions will be "Yes" then you can choose that topic. In most of the cases, you may have to conduct the surveys and have to visit several places because this field is related to Computer Science and Information Technology. Also, you may have to do a lot of work to find all rise and falls regarding the various data of that subject. Sometimes, detailed information plays a vital role, instead of short information.

2. Evaluators are human: First thing to remember that evaluators are also human being. They are not only meant for rejecting a paper. They are here to evaluate your paper. So, present your Best.

3. Think Like Evaluators: If you are in a confusion or getting demotivated that your paper will be accepted by evaluators or not, then think and try to evaluate your paper like an Evaluator. Try to understand that what an evaluator wants in your research paper and automatically you will have your answer.

4. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

5. Ask your Guides: If you are having any difficulty in your research, then do not hesitate to share your difficulty to your guide (if you have any). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work then ask the supervisor to help you with the alternative. He might also provide you the list of essential readings.

6. Use of computer is recommended: As you are doing research in the field of Computer Science, then this point is quite obvious.

7. Use right software: Always use good quality software packages. If you are not capable to judge good software then you can lose quality of your paper unknowingly. There are various software programs available to help you, which you can get through Internet.

8. Use the Internet for help: An excellent start for your paper can be by using the Google. It is an excellent search engine, where you can have your doubts resolved. You may also read some answers for the frequent question how to write my research paper or find model research paper. From the internet library you can download books. If you have all required books make important reading selecting and analyzing the specified information. Then put together research paper sketch out.

9. Use and get big pictures: Always use encyclopedias, Wikipedia to get pictures so that you can go into the depth.

10. Bookmarks are useful: When you read any book or magazine, you generally use bookmarks, right! It is a good habit, which helps to not to lose your continuity. You should always use bookmarks while searching on Internet also, which will make your search easier.

11. Revise what you wrote: When you write anything, always read it, summarize it and then finalize it.

12. Make all efforts: Make all efforts to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in introduction, that what is the need of a particular research paper. Polish your work by good skill of writing and always give an evaluator, what he wants.

13. Have backups: When you are going to do any important thing like making research paper, you should always have backup copies of it either in your computer or in paper. This will help you to not to lose any of your important.

14. Produce good diagrams of your own: Always try to include good charts or diagrams in your paper to improve quality. Using several and unnecessary diagrams will degrade the quality of your paper by creating "hotchpotch." So always, try to make and include those diagrams, which are made by your own to improve readability and understandability of your paper.

15. Use of direct quotes: When you do research relevant to literature, history or current affairs then use of quotes become essential but if study is relevant to science then use of quotes is not preferable.

16. Use proper verb tense: Use proper verb tenses in your paper. Use past tense, to present those events that happened. Use present tense to indicate events that are going on. Use future tense to indicate future happening events. Use of improper and wrong tenses will confuse the evaluator. Avoid the sentences that are incomplete.

17. Never use online paper: If you are getting any paper on Internet, then never use it as your research paper because it might be possible that evaluator has already seen it or maybe it is outdated version.

18. Pick a good study spot: To do your research studies always try to pick a spot, which is quiet. Every spot is not for studies. Spot that suits you choose it and proceed further.

19. Know what you know: Always try to know, what you know by making objectives. Else, you will be confused and cannot achieve your target.

20. Use good quality grammar: Always use a good quality grammar and use words that will throw positive impact on evaluator. Use of good quality grammar does not mean to use tough words, that for each word the evaluator has to go through dictionary. Do not start sentence with a conjunction. Do not fragment sentences. Eliminate one-word sentences. Ignore passive voice. Do not ever use a big word when a diminutive one would suffice. Verbs have to be in agreement with their subjects. Prepositions are not expressions to finish sentences with. It is incorrect to ever divide an infinitive. Avoid clichés like the disease. Also, always shun irritating alliteration. Use language that is simple and straight forward. put together a neat summary.

21. Arrangement of information: Each section of the main body should start with an opening sentence and there should be a changeover at the end of the section. Give only valid and powerful arguments to your topic. You may also maintain your arguments with records.

22. Never start in last minute: Always start at right time and give enough time to research work. Leaving everything to the last minute will degrade your paper and spoil your work.

23. Multitasking in research is not good: Doing several things at the same time proves bad habit in case of research activity. Research is an area, where everything has a particular time slot. Divide your research work in parts and do particular part in particular time slot.

24. Never copy others' work: Never copy others' work and give it your name because if evaluator has seen it anywhere you will be in trouble.

25. Take proper rest and food: No matter how many hours you spend for your research activity, if you are not taking care of your health then all your efforts will be in vain. For a quality research, study is must, and this can be done by taking proper rest and food.

26. Go for seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

27. Refresh your mind after intervals: Try to give rest to your mind by listening to soft music or by sleeping in intervals. This will also improve your memory.

28. Make colleagues: Always try to make colleagues. No matter how sharper or intelligent you are, if you make colleagues you can have several ideas, which will be helpful for your research.

29. Think technically: Always think technically. If anything happens, then search its reasons, its benefits, and demerits.

30. Think and then print: When you will go to print your paper, notice that tables are not be split, headings are not detached from their descriptions, and page sequence is maintained.

31. Adding unnecessary information: Do not add unnecessary information, like, I have used MS Excel to draw graph. Do not add irrelevant and inappropriate material. These all will create superfluous. Foreign terminology and phrases are not apropos. One should NEVER take a broad view. Analogy in script is like feathers on a snake. Not at all use a large word when a very small one would be sufficient. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Amplification is a billion times of inferior quality than sarcasm.

32. Never oversimplify everything: To add material in your research paper, never go for oversimplification. This will definitely irritate the evaluator. Be more or less specific. Also too, by no means, ever use rhythmic redundancies. Contractions aren't essential and shouldn't be there used. Comparisons are as terrible as clichés. Give up ampersands and abbreviations, and so on. Remove commas, that are, not necessary. Parenthetical words however should be together with this in commas. Understatement is all the time the complete best way to put onward earth-shaking thoughts. Give a detailed literary review.

33. Report concluded results: Use concluded results. From raw data, filter the results and then conclude your studies based on measurements and observations taken. Significant figures and appropriate number of decimal places should be used. Parenthetical remarks are prohibitive. Proofread carefully at final stage. In the end give outline to your arguments. Spot out perspectives of further study of this subject. Justify your conclusion by at the bottom of them with sufficient justifications and examples.

34. After conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print to the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects in your research.

Informal Guidelines of Research Paper Writing

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form, which is presented in the guidelines using the template.
- Please note the criterion for grading the final paper by peer-reviewers.

Final Points:

A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

The introduction will be compiled from reference matter and will reflect the design processes or outline of basis that direct you to make study. As you will carry out the process of study, the method and process section will be constructed as like that. The result segment will show related statistics in nearly sequential order and will direct the reviewers next to the similar intellectual paths throughout the data that you took to carry out your study. The discussion section will provide understanding of the data and projections as to the implication of the results. The use of good quality references all through the paper will give the effort trustworthiness by representing an alertness of prior workings.

Writing a research paper is not an easy job no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record keeping are the only means to make straightforward the progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear

· Adhere to recommended page limits

Mistakes to evade

- Insertion a title at the foot of a page with the subsequent text on the next page
- Separating a table/chart or figure - impound each figure/table to a single page
- Submitting a manuscript with pages out of sequence

In every sections of your document

· Use standard writing style including articles ("a", "the," etc.)

· Keep on paying attention on the research topic of the paper

· Use paragraphs to split each significant point (excluding for the abstract)

· Align the primary line of each section

· Present your points in sound order

· Use present tense to report well accepted

· Use past tense to describe specific results

· Shun familiar wording, don't address the reviewer directly, and don't use slang, slang language, or superlatives

· Shun use of extra pictures - include only those figures essential to presenting results

Title Page:

Choose a revealing title. It should be short. It should not have non-standard acronyms or abbreviations. It should not exceed two printed lines. It should include the name(s) and address (es) of all authors.

Abstract:

The summary should be two hundred words or less. It should briefly and clearly explain the key findings reported in the manuscript--must have precise statistics. It should not have abnormal acronyms or abbreviations. It should be logical in itself. Shun citing references at this point.

An abstract is a brief distinct paragraph summary of finished work or work in development. In a minute or less a reviewer can be taught the foundation behind the study, common approach to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Yet, use comprehensive sentences and do not let go readability for briefness. You can maintain it succinct by phrasing sentences so that they provide more than lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study, with the subsequent elements in any summary. Try to maintain the initial two items to no more than one ruling each.

- Reason of the study - theory, overall issue, purpose
- Fundamental goal
- To the point depiction of the research
- Consequences, including definite statistics - if the consequences are quantitative in nature, account quantitative data; results of any numerical analysis should be reported
- Significant conclusions or questions that track from the research(es)

Approach:

- Single section, and succinct
- As a outline of job done, it is always written in past tense
- A conceptual should situate on its own, and not submit to any other part of the paper such as a form or table
- Center on shortening results - bound background information to a verdict or two, if completely necessary
- What you account in an conceptual must be regular with what you reported in the manuscript
- Exact spelling, clearness of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else

Introduction:

The **Introduction** should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

- Explain the value (significance) of the study
- Shield the model - why did you employ this particular system or method? What is its compensation? You strength remark on its appropriateness from a abstract point of vision as well as point out sensible reasons for using it.
- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
- Very for a short time explain the tentative propose and how it skilled the declared objectives.

Approach:

- Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done.
- Sort out your thoughts; manufacture one key point with every section. If you make the four points listed above, you will need a least of four paragraphs.

- Present surroundings information only as desirable in order hold up a situation. The reviewer does not desire to read the whole thing you know about a topic.
- Shape the theory/purpose specifically - do not take a broad view.
- As always, give awareness to spelling, simplicity and correctness of sentences and phrases.

Procedures (Methods and Materials):

This part is supposed to be the easiest to carve if you have good skills. A sound written Procedures segment allows a capable scientist to replacement your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt for the least amount of information that would permit another capable scientist to spare your outcome but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section. When a technique is used that has been well described in another object, mention the specific item describing a way but draw the basic principle while stating the situation. The purpose is to text all particular resources and broad procedures, so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step by step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

Methods:

- Report the method (not particulars of each process that engaged the same methodology)
- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

Approach:

- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

What to keep away from

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings - save it for the argument.
- Leave out information that is immaterial to a third party.

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently.You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.

Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

What to stay away from

- Do not discuss or infer your outcome, report surroundings information, or try to explain anything.
- Not at all, take in raw data or intermediate calculations in a research manuscript.
- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

Approach

- As forever, use past tense when you submit to your results, and put the whole thing in a reasonable order.
- Put figures and tables, appropriately numbered, in order at the end of the report
- If you desire, you may place your figures and tables properly within the text of your results part.

Figures and tables

- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
- Despite of position, each figure must be numbered one after the other and complete with subtitle
- In spite of position, each table must be titled, numbered one after the other and complete with heading
- All figure and table must be adequately complete that it could situate on its own, divide from text

Discussion:

The Discussion is expected the trickiest segment to write and describe. A lot of papers submitted for journal are discarded based on problems with the Discussion. There is no head of state for how long a argument should be. Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implication of the study. The purpose here is to offer an understanding of your results and hold up for all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of result should be visibly described. Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved with prospect, and let it drop at that.

- Make a decision if each premise is supported, discarded, or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."
- Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work
- You may propose future guidelines, such as how the experiment might be personalized to accomplish a new idea.
- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
- One research will not counter an overall question, so maintain the large picture in mind, where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

- When you refer to information, differentiate data generated by your own studies from available information
- Submit to work done by specific persons (including you) in past tense.
- Submit to generally acknowledged facts and main beliefs in present tense.

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References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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