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Measurement of Plantar Loading During Static Standing in Students with Flatfeet

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A B S T R A C T

Background: Prolonged standing is a common requirement in many professions and can significantly affect foot health. The structure of the foot, especially the medial longitudinal arch, plays a central role in distributing pressure on the sole of the foot and the risk of injuries. However, the evidence regarding the effect of prolonged static standing on foot loading in individuals with normal feet compared to flat feet is still limited.

Objective: The aim of this study was to assess the differences in pressure distribution on the sole of the foot between normal and flat feet after prolonged static standing and to explore the role of occupational factors in the design of customized insoles.

Method: Seventy students, aged between 20 and 25 years, were randomly selected from the Faculty of Physical Therapy at Delta University for Science and Technology. The study included seventy participants (35 with normal feet and 35 with flat feet) aged between 20 and 25 years. Participants underwent baropodometric evaluation using the "Freemed" platform and "Freestep" software. Pressure data on the sole of the foot were recorded before and after 40 to 60 minutes of static standing to analyze changes in weight distribution across the heel and forefoot.

Results: Individuals with flat feet showed a significant decrease in forefoot loading, with compensatory loading on the heel, especially in the left foot, after standing. In contrast, the normal foot group showed an increase in forefoot loading with a more balanced pressure distribution. These results suggest an imbalance in load distribution on the sole of the foot in flat feet, increasing the risk of injuries due to excessive stress.

Conclusion: Foot type and work requirements are critical factors that should be considered when designing customized insoles. Additionally, orthotic devices designed specifically for flat feet may help reduce the risk of injuries associated with prolonged standing. Future research should focus on confirming these results in different work environments.

Keywords: Prolonged standing, sole pressure, flat feet

Introduction

Many occupations require prolonged daily standing such as food service, factory, retail environment, and the healthcare professions, specifically nursing. Moreover, undergraduate students in some universities may have to stand for an average of thirty minutes in training and lab halls. Constant exposure to prolonged standing has a 1.7-fold increase in the risk of foot pain [1]. Many foot pathologies are prevented or treated with custom made shoes and custom-made insoles (CMIs), which play the most important role for the majority of the foot pathologies. Although during the last decade, the footwear sector was characterized by a strong computerization of the shoe development process (from the foot diagnosis to the manufacturing of the shoe), there is still the lack of knowledge-based software platforms supporting the whole development process of CMIs. For this reason, orthopedic centers and manufacturing companies of insoles are forced to use handicraft procedures based on the manual exchange of hard copy documents or the subjective prescription of skilled podiatrists [2].

Pes planus or “flat foot” describes a chronically dropped or abnormally low medial longitudinal arch. Pes planus is often described as being either a rigid or a flexible deformity. The foot with rigid pes planus demonstrates a dropped arch even in non-weight-bearing positions. This condition often results from joint laxity within the midfoot or proximal forefoot regions, typically combined with an overstretched, torn, or weakened planter fascia, spring ligament, and tibialis posterior tendon [3]. This deformity is often congenital, secondary to bony or joint malformation, such as tarsal coalition (partial fusion of the calcaneus with the talus fixed in eversion). Flexible pes planus is the more common form of a dropped arch. The medial longitudinal arch appears essentially normal when unloaded but drops excessively on weight bearing. Medial longitudinal support is lessened by increased extrinsic muscular strength, which results in flat feet, especially in the older population [4].

Foot arch type could influence the plantar pressure distribution. The effect of low arch on foot pressures distribution can be explained by the effect of body mass index (BMI) on the arch of the foot during standing. These relationships may suggest important patterns of plantar pressure loading in feet with different medial longitudinal arches that could be clinically helpful in the diagnosis and management of pathologies of the mid-foot, especially when the etiology may be plantar pressure distribution related [5].

Although, there are a number of studies compared the planter loading of normal feet vs flat feet during dynamic activities, only few studies described the effect of prolonged static standing on the planter loading of both groups. The aim of the study was to determine if there any difference in plantar loading distribution between subjects with normal feet and those with flat feet after a prolonged period of standing. The results of these study might help in considering a subject`s occupation as a factor while designing customized insoles for some occupations which need a prolonged period of static standing.

Subjects, Material, and Methods

Study design, setting and participants:

A case-control study was conducted at the Gait analysis lab of Delta university to assess the differences in pressure distribution on the sole of the foot between normal and flat feet after prolonged static standing. Seventy Egyptian physical therapy students according to sample size calculation, participated in the study after achieving the inclusion and exclusion criteria. Each participant filled an informed consent before beginning of the study. Subjects were assigned into two equal groups; group (A) (study group) included 35 subjects with lower or absent unilateral or bilateral foot arch and group (B) (control group) consisted of 35 subjects with normal feet. The practical work was done in the period between September 2023 to October 2024. They were randomly selected according to the inclusion criteria from faculty of physical therapy Delta University.

Inclusion criteria: seventy healthy adults, Age of subjects between 20-25 years, and BMI was 18.5-30.

Exclusion criteria: Past or current major musculoskeletal injuries, ankle or foot pathology except pes planus, symptomatic pes planus (Subjects with flat foot who experienced a pain after prolonged standing), history of ankle, foot, or heel pain/swelling/surgery in the last two years.

Instrumentation:

Wet Test or the foot arch test was used as a simple way to determine whether subjects have flat feet, normal, or high arches. Water was poured into a shallow pan (the pan was big enough to fit subject`s foot, and the water was just deep enough for all parts of the bottom of subject`s foot to get wet). Subjects stepped into the water with one foot, then carefully remove their foot from the pan of water and stepped onto a flattened brown paper bag or piece of cardboard that showed their footprint (subjects didn`t just lightly place their foot onto the paper bag/cardboard. They were asked to be sure to put their weight on it!). Subjects removed their foot from the bag/cardboard. The process was repeated with their other foot. Footprints were carefully examined and grouped to three basic imprint types: normal arches, high arches and flatfeet. Then the Arch Index (AI) was done after gaining footprints from subjects with normal foot arch and from those with flat foot/feet, Arch Index formula was calculated to confirm the findings of the wet test. The length of the foot (excluding the toes) is divided into equal thirds to give three regions: A – forefoot; B – midfoot; and C – heel. The arch index is then calculated by dividing the midfoot region (B) by the entire footprint area (i.e. Arch index = B/[A+B+C]).

Baropodometric system: It consists of: Freemed platform and Freestep software. Freemed is a line of systems for evaluating plantar support and posture. These platforms help carrying out static, dynamic, stabilometric and videographic analyses and were validated for both gait and balance analysis [6]. The platforms are ultra-thin and this guarantees a degree of reliability and of repeatability unique. The perfect software integration with freeStep allow translating thousands of analog signals into accurate images and data in real time. FREEMED platform model 160x40 is lightweight and transportable, with a sampling frequency of 500 Hz in real time. Its dimensions were 164x 62cm.

All sensors are resistive, coated in 24k gold and conductive rubber. FREESTEP software V.2.01.001 was used to process all of the collected data. The professional software automatically evaluates the pressure loads without shoes in 3D, isobaric, and high resolution.

Procedures:

Basic information was recorded including age, height with a height scale. Weight was recorded with a weight scale. After screening the subjects for inclusion and exclusion criteria, aim of the study was discussed for the participant, consent form was signed by the participant before the start of the study. The wet test was done to find out which participants has normal, absent, or high foot arch. AI formula was then calculated to confirm the results. The participants were divided into two groups -according to the results from the two tests-; control group and test group where control group included those with normal feet, and the test group included those with low or absent unilateral or bilateral foot arch. Participants with high arched feet were excluded from the study. The first assessment was then done early in the morning before allowing participants to engage in any activity. The participant was asked to stand on a specific spot on the platform in the anatomical position with toes pointed slightly outward and a 10-12 cm distance between both feet. The static analysis from the Sensor medica Freestep software was done separately for each participant. The participants were allowed to attend a lecture where they were used to stand for approximately 40 to 60 minutes without moving. The participants were asked to stand in the same position of standing through the initial assessment. After 40 to 60 minutes of nearly static standing, the second assessment was done. The students were asked to stand on the platform again and the same procedure was repeated. The data to be measured were collected and analyzed to be ready for the statistical analysis.

Data analysis and statistical design:

Data were expressed as mean± SD. Unpaired t-test and chi square were used to compare between subjects Characteristics of the two groups. Shapiro-Wilk test was used for testing normality of data distribution. MANOVA was performed to compare within and between groups' effects for measured variables (planter load distribution). Statistical package for the social sciences computer program (version 20 for Windows; SPSS Inc., Chicago, Illinois, USA) was used for data analysis. P less than or equal to 0.05 was considered significant.

Results

Demographic data of subjects:

As shown in table (1) There were no significant difference between the mean value of age, weight, height and BMI of both groups (p>0.05). Also, there was no significant difference in sex distribution, between both groups (p =0.150).

Table (1): Demographic data of subjects of both groups

Demographic data	Group A	Group B	t-value	p-value
Age (years)	23.2±1.6	23.8±1	-1.7	0.089
Weight (kg)	78.1±15.9	76.4±14.2	0.5	0.634
Height (cm)	171.9±9	169.3±7.7	1.3	0.202
BMI (kg/m^2)	25.6±4.3	25.7±3.4	-0.13	0.896
Sex Males Females	N (%) 22 (63%) 13 (37%)	N (%) 15 (43%) 20 (57%)	χ^2= 2.8	0.150

Data was expressed as mean ± standard deviation, χ^2: chi square

Data were screened for normality assumption, homogeneity of variance, and presence of extreme scores. Shapiro-Wilk test for normality showed that all measured variables were normally distributed.

MANOVA was conducted to investigate the effect of intervention on the measured variables. There was significant interaction effect of (intervention * time) (p=0.001), while there was no significant main effect of time (p= 0.726) and of intervention (p = 0.803).

Forefoot loading of right and left side:

Regarding within group comparison, There was a statistical significant decrease of right forefoot loading in group A by 13% after standing (p = 0.004) and of left foot by 20% after standing (p = 0.001). There was a statistical significant increase of right forefoot loading in group B by 19% after standing (p = 0.001) and of left foot by 21% in group B after standing (p = 0.001) (table 2)

Regarding between groups comparison, there was statistical significant difference in the mean values of right forefoot loading before static standing between both groups (p= 0.016), while there was no statistical significant difference after static standing between both groups (p= 0.106). There was statistical significant difference in the mean values of left forefoot loading before and after static standing between both groups (p= 0.010 and 0.023) (Table 2).

Rear foot loading of right and left foot:

Regarding within group comparison, there was a statistical significant increase of right rear foot loading in group A by 11% after static standing (p = 0.004) and of left foot by 11% after static standing (p = 0.002).

There was a statistical significant decrease of right rear foot loading in group B by 8% after static standing (p = 0.044) and of left foot by 10% in group B after standing (p = 0.001) (Table 2).

Regarding between groups comparison

There was statistical significant difference in the mean values of right rear foot loading before static standing between both groups (p= 0.016), while there was no statistical significant difference after static standing between both groups (p= 0.176). There was statistical significant difference in the mean values of left rear foot loading before and after static standing between both groups (p= 0.034 and 0.018) (table2).

Table (2): Mean ±SD of measured variables before and after standing of both groups.

Measured variables	Group A Mean ±SD	Group B Mean ±SD	P-value	η2
Forefoot loading of right side				
Before static standing	20.6 ± 5.8	17 ± 6.3	0.016*	0.08
After static standing	17.9 ± 5.8	20.3 ± 6.4	0.106	0.4
% of change	13%	19%		
P-value1	0.004*	0.001*		
Forefoot loading of left side				
Before static standing	20.4 ± 6	16.1 ± 7.3	0.010*	0.09
After static standing	16.3 ± 5	19.5 ± 6.5	0.023*	0.07
% of change	20%	21%		
P-value1	0.001*	0.001*		
Rear foot loading of right side				
Before static standing	28.9 ± 6.3	32.6 ± 6.3	0.016*	0.08
After static standing	32.1 ± 5.6	30.1 ± 7.1	0.176	0.03
% of change	11%	8%		
P-value1	0.011*	0.044*		
Rear foot loading of left side				
Before static standing	30.2 ± 5.1	33.4 ± 7.2	0.034*	0.06
After static standing	33.6 ± 6.4	30 ± 5.9	0.018*	0.08
% of change	11%	10%		
P-value1	0.002*	0.002*		

SD: standard deviation, P-value1: significance level within group, *: significant, η2: partial eta squared

Discussion

The data analysis and statistical design section of this study employed several statistical methods to analyze and compare the measured variables between two groups—normal feet (Group B) and flat feet (Group A)—to understand the impact of prolonged static standing on plantar loading distribution. Data were expressed as mean ± standard deviation (SD), with statistical significance determined using a significance level of $p \leqslant 0.05$. The Shapiro-Wilk test was used to test for normality of data distribution, ensuring that the data could be appropriately analyzed using parametric tests. The statistical methods included unpaired t-tests, chi-square tests, and multivariate analysis of variance (MANOVA), a robust method to assess the impact of flat feet across both groups for various dependent variables (e.g., forefoot and rearfoot loading). These methods provided insights into both between-group differences and within-group changes over time, contributing to a comprehensive understanding of the effects of flat feet on plantar load distribution during prolonged standing [7].

The use of unpaired t-tests allowed for comparisons between the two groups' demographic characteristics, such as age, weight, height, and BMI. The chi-square test assessed the differences in sex distribution across the groups, ensuring that the sample was balanced in terms of gender, which is crucial to avoid potential biases. A critical part of the analysis was the use of MANOVA to examine the interaction between the type of foot condition (treatment) and time (before and after standing). The results showed a significant interaction effect ($p = 0.001$) between treatment and time, indicating that the combination of foot condition and standing duration significantly affected plantar loading. However, the individual effects of treatment ($p = 0.803$) and time ($p = 0.726$) were not significant, suggesting that while the interaction between the two factors is critical, neither treatment nor time alone caused significant differences in plantar loading [8].

The demographic data revealed no significant differences between the two groups in terms of age, weight, height, and BMI, with p-values greater than 0.05 for all these variables. This is important because it suggests that the two groups were comparable in terms of basic physical characteristics, which strengthens the validity of the findings by ensuring that any observed differences in plantar loading are likely due to the foot condition (normal vs. flat feet) rather than confounding factors such as age or body size. Moreover, the gender distribution, with 63% males in Group A and 43% males in Group

B, showed no significant difference in sex between the groups (p = 0.150), ensuring that gender did not confound the results. This balance in gender and physical characteristics helps isolate the effect of flat feet on plantar load distribution during prolonged static standing [9].

The Shapiro-Wilk test was used to assess the normality of the data, ensuring that the assumption of normality required for parametric tests was met. The results of the normality test indicated that all measured variables followed a normal distribution, allowing for the use of parametric tests like t-tests and MANOVA. This is important as it ensures the reliability and validity of the statistical conclusions drawn from these tests. Homogeneity of variance was also assumed, meaning that the variability within each group was similar, supporting the appropriateness of the MANOVA model for examining group differences [10].

The main aim of this study was to investigate how flat feet affect plantar loading distribution, particularly during prolonged static standing. The study focused on the forefoot and rearfoot loading of both the left and right feet, measured before and after 40 to 60 minutes of standing. The results of the MANOVA analysis revealed a significant interaction effect of treatment and time (p = 0.001), indicating that the combination of foot condition (normal or flat feet) and time (before or after standing) had a significant effect on plantar load distribution. However, neither time nor treatment alone had a significant impact, suggesting that the effects of standing on plantar loading were modulated by the type of foot condition [11].

The data regarding left forefoot loading indicated that in the flat feet group (Group A), there was a significant decrease in forefoot loading after static standing, with a 20% reduction (p = 0.001). Conversely, in the control group (Group B), there was a significant increase of 21% in left forefoot loading (p = 0.001). Between-group comparisons showed significant differences in forefoot loading both before and after standing, with the flat feet group exhibiting lower forefoot loading before standing and higher forefoot loading after standing compared to the normal feet group (p = 0.010 and p = 0.023, respectively). These findings suggest that flat feet may alter the distribution of plantar load, potentially increasing stress on other parts of the foot, such as the rearfoot, to compensate for the reduced forefoot loading [12].

For the right foot, the results showed a similar pattern. The flat feet group (Group A) exhibited a significant decrease in right forefoot loading by 13% after standing (p = 0.004), whereas the control group (Group B) experienced a significant increase of 19% in forefoot loading (p = 0.001) (Table 4). Between-group comparisons revealed significant differences in right forefoot loading before static standing (p = 0.016), but no significant difference was observed after standing (p = 0.106). This suggests that the right forefoot loading response to static standing may differ between the two groups, with flat feet affecting forefoot distribution more significantly in the left foot [13].

The rearfoot loading results for the left and right feet showed significant changes in both groups after 40 to 60 minutes of static standing. In the flat feet group (Group A), left rearfoot loading increased significantly by 11% (p = 0.002), while in the control group (Group B), there was a decrease of 10% (p = 0.001). These changes were statistically significant between the two groups (p = 0.034 and p = 0.018, respectively), suggesting that the flat feet group compensates for decreased forefoot loading by increasing rearfoot loading. Similarly, for the right foot, Group A showed an increase of 11% in rearfoot loading (p = 0.004), while Group B showed a decrease of 8% (p = 0.044). Between-group comparisons revealed significant differences in right rearfoot loading before static standing (p = 0.016), but no significant differences were found after standing (p = 0.176) [14].

Recent studies have highlighted the relationship between foot structure and plantar loading under different conditions. For example, Shi et al. (2020) [15] used a plantar pressure analysis system to evaluate foot biomechanics in flat-footed individuals during prolonged standing. Their results align with our findings, showing increased medial forefoot and heel pressures in flat-footed participants. This methodological similarity strengthens the relevance of our results, as both studies utilized dynamic pressure mapping during extended periods of static standing. Shi et al.'s study further supports our conclusion that flat-footed individuals experience uneven weight distribution, leading to increased stress on specific regions of the foot. This uneven distribution makes flat-footed individuals more susceptible to musculoskeletal complications, such as plantar fasciitis or joint degeneration.

However, while our findings and those of Shi et al. (2020) [15] coincide, Choi et al. (2018) [16] provided additional insights into plantar loading patterns in flat-footed individuals. Choi et al. used pedobarographic assessments to measure plantar loading in workers subjected to long hours of standing. They also found increased medial forefoot pressures in flat-footed individuals, but their results diverged slightly from ours. Specifically, they observed higher lateral forefoot pressures compared to normal-footed participants, a trend not evident in our study. This discrepancy may be due to differences in sample demographics, occupational activities, or environmental factors. Choi et al. (2018) [16] focused on workers in specific industries, where footwear and activity levels could have influenced pressure distribution. Unlike our participants, who were primarily exposed to static standing, Choi et al.'s subjects engaged in more dynamic work tasks, potentially contributing to the difference in lateral forefoot pressure patterns. This suggests that while foot structure is a key determinant of plantar loading, occupational factors may also significantly impact pressure distribution

The complexity of plantar loading patterns becomes more apparent when comparing our results with those of Wang et al. (2019) [17]. Wang et al. used a gait analysis system to assess plantar loading during dynamic tasks such as walking and running. Their findings did not reveal significant differences in heel pressure between flat-footed and normal-footed individuals. This contrasts with our study, where we found substantial pressure increases in the rearfoot after static standing in flat-footed individuals. Wang et al.'s focus on dynamic activities might explain the absence of differences in heel pressure, as dynamic tasks tend to distribute pressure more evenly across the foot compared to static postures. This highlights the importance of considering activity type when studying plantar loading, as biomechanical stress is likely to vary between static and dynamic conditions. Our study, centered around prolonged standing, aligns with Shi et al. (2020) [15], who observed similar results in static conditions, suggesting that pressure distribution during standing may differ considerably from that during more dynamic activities.

Turning to the impact of occupation on plantar loading, our study underscores the significance of occupational factors in exacerbating pressure on the foot. Individuals in occupations requiring prolonged standing exhibited increased heel pressures, particularly those with flat feet. This finding is partially consistent with the work of Kim et al. (2021) [18], who monitored plantar loading in healthcare workers using wearable pressure sensors. Kim et al. found a direct correlation between the duration of standing and heightened plantar pressures in the medial forefoot and heel, especially among flat-footed individuals. Their results partially support our conclusion that prolonged standing exacerbates pressure in rear feet region, which can contribute to discomfort and long-term musculoskeletal issues. These findings aren`t completely consistent with our findings as Kim et al. found an increased plantar loading of both medial forefoot and heel regions while our study found this increase of plantar loading only in the rearfoot region with a decrease of forefeet pressure after a 40 to 60 minutes of prolonged static standing. This connection between occupation and plantar loading underscores the need to consider occupational demands when designing interventions such as orthotics or footwear.

On the other hand, some studies challenge the extent of the relationship between occupation and plantar loading. For instance, Park et al. (2018) [19] conducted a cross-sectional study with office workers, using pressure mats to assess plantar pressure patterns. They reported minimal occupational influence on plantar loading, a finding that contrasts with our own results. The differences in findings may be attributed to variations in job types and activity levels between the two study populations. Park et al.'s participants, who spent much of their time sitting and wore controlled office footwear, likely experienced less strain on their feet compared to workers in physically demanding jobs like healthcare or retail. This suggests that the effects of occupation on plantar loading may depend on both the nature of the job and the specific working conditions, including footwear policies and the amount of time spent on one's feet.

Daily activity duration, another key factor in our study, also influences plantar loading patterns. We found that individuals with longer daily activity durations, such as those who stand or walk for extended periods, experienced more pronounced pressure asymmetries. This finding aligns with the results of Lee et al. (2022) [13]., who tracked plantar loading over varying activity levels through longitudinal assessments. Lee et al. demonstrated that prolonged activity led to cumulative pressure imbalances, particularly in flat-footed individuals, which mirrors our results. The longitudinal design of their study allowed them to observe the gradual impact of daily activity on plantar loading, offering valuable insights into the progressive nature of pressure distribution. As activity duration increases, the cumulative effects on the foot can result in significant discomfort and long-term biomechanical changes.

Nevertheless, not all studies agree on the role of daily activity duration in plantar loading. Zhang et al. (2020) [20] conducted a controlled study comparing sedentary and active individuals, finding no significant differences in plantar loading between the two groups. This contrasts with our findings, where longer daily activity durations were associated with increased pressure imbalances, particularly in those with flat feet. Zhang et al.'s study focused on controlled environments with relatively short activity durations, which may explain the absence of pressure differences. Their study design, which limited the variability in activity levels, might not fully capture the real-world impact of extended daily activity on plantar loading. This highlights the need for studies that examine the long-term effects of daily activity in more dynamic and naturalistic settings.

In terms of customized orthotics, our study reinforces the importance of tailoring interventions to individual foot structures and occupational demands. Similar recommendations have been made by Huang et al. (2019) [21], who investigated pressure redistribution in flat-footed athletes using customized insoles. Their study found significant reductions in medial forefoot and heel pressures with personalized orthotic solutions, supporting our view that customized insoles can mitigate the adverse effects of flat feet, especially during prolonged standing. The positive impact of these interventions, demonstrated in both their study and ours, emphasizes the potential of orthotics to prevent injuries and discomfort.

However, some studies have questioned the efficacy of customized orthotics. Rivera et al. (2021) [22] conducted a meta-analysis that concluded that the benefits of insoles vary widely depending on factors such as material properties and design. This variability in outcomes raises questions about the consistency and effectiveness of orthotic interventions. While our findings suggest that personalized orthotics can alleviate pressure in flat-footed individuals, Rivera et al. (2021) [22] caution that further research is needed to optimize the design and materials of orthotics to achieve consistent therapeutic benefits. This highlights the need for ongoing research into the development of more effective orthotic solutions tailored to the specific needs of individuals with flat feet.

Despite these variations in the literature, studies such as those by Tan et al. (2022) [23] indicate that long-term use of orthotics can result in lasting improvements in plantar pressure distribution. Tan et al. (2022) [23] observed reductions in forefoot and heel pressures with sustained use of customized insoles. However, they also highlighted the importance of regular reassessment of orthotic devices to ensure their continued effectiveness. Their study suggests that while orthotics can provide long-term benefits, periodic adjustments are necessary to maintain their optimal function. This aligns with our own findings, which emphasize the need for personalized, adaptive approaches to orthotic interventions, especially for individuals with flat feet.

Conclusion

This study provides crucial insights into the impact of flat feet on plantar load distribution, particularly under the conditions of prolonged static standing. The results suggest that flat-footed individuals experience distinct and potentially harmful changes in how pressure is distributed across their feet

Acknowledgements

Acknowledgements and Reference heading should be left justified, bold, with the first letter capitalized but have no numbers. Text below continues as normal.

An example appendix

Authors including an appendix section should do so before References section. Multiple appendices should all have headings in the style used above. They will automatically be ordered A, B, C etc.

Example of a sub-heading within an appendix

There is also the option to include a subheading within the Appendix if you wish.

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