

# PHYSIOTHERAPY REPORT

## Breach of Duty Report.

Concerning

**Mr**

**Of**

Date of Birth:

0X.0X.19XX

Date of Report:

April 2020

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**Prepared by:**

XXXXXXXXXXXXXXXXXXXX Grad. Dip. Phys. MCSP. HCPC  
Chartered and Health and Care Professions Council Registered Physiotherapist  
Partner of The White House Medico-Legal Services

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**Prepared for the Court**

**Instructing Solicitors:**

xxxx Solicitors

Ref: xxxxxxx

Ref: JCH/DGW/C. xxxxx

**TABLE OF CONTENTS**

**1.0 INTRODUCTION..... 3**

**2.0 SOURCES OF EVIDENCE CONSIDERED ..... 5**

**3.0 SUMMARY OF THE CASE..... 5**

**4.0 BACKGROUND INFORMATION ..... 6**

**5.0 PHYSIOTHERAPY MANAGEMENT ..... 6**

**6.0 IN CONSIDERATION OF SPECIFIC QUESTIONS. .... 9**

**7.0 CONCLUSIONS:..... 9**

**8.0 OPINION ..... 10**

**9.0 DECLARATION..... 11**

**APPENDIX 1 - Background Information Relating to the Expert..... 12**

**APPENDIX 2 - Documents Considered..... 13**

**APPENDIX 3 - References ..... 14**

**APPENDIX 4 - Glossary of Terms ..... 18**

**APPENDIX 5: Summary CV ..... 21**

**QUALIFIICATIONS..... Error! Bookmark not defined.**

**PROFILE ..... Error! Bookmark not defined.**

**CONTACT ..... Error! Bookmark not defined.**

**EXPERIENCE ..... Error! Bookmark not defined.**

**THE EXPERT ..... Error! Bookmark not defined.**

**CLINICAL EXPERIENCE..... Error! Bookmark not defined.**

**EXPERT WITNESS EXPERIENCE ..... Error! Bookmark not defined.**

## **1.0 INTRODUCTION**

1.1 I have been instructed by xxxx Solicitors, of xxxxxx, to prepare a Breach of Duty Physiotherapy Report for physiotherapy provided to Mr xxxxxxxxxxxxxx and specifically to consider the physiotherapy treatment provided between xxxxxxxx.

### **Background to Expert.**

1.2 The White House Medico-Legal Services - consists of a Multi-Disciplinary Team of Senior and consultant Chartered and Health Professions Council Registered Physiotherapists, Consultant Senior Nursing Sisters and Consultant Occupational Therapists each specialising in their own particular area. Cases covered include adults and children severely disabled through road traffic accidents or by medical negligence resulting in head injuries, spinal injuries and cerebral palsy as well as sporting and industrial mishaps and straightforward orthopaedic accidents resulting in whiplash, neck and back injuries, amputation, fractures and soft tissue injuries besides simple tripping and slipping accidents. Professional Negligence Reports are also prepared on Nursing and Physiotherapy Issues.

1.3 The practice has more than forty years' experience in assessing the needs of severely disabled people with catastrophic injuries for the Legal Profession.

### **The Expert: XXXXXXXXXXXXXXXXXXXX**

1.4 My specialist field is Physiotherapy of Orthopaedic Physiotherapy and Musculo-Skeletal Injuries. I specialise in the treatment of bones, joints and soft tissue injuries. I have twenty years post-graduate experience in the treatment of orthopaedic injuries and have undertaken an extensive programme of continuing professional development in this field. I have extensive experience with providing pre- and post-operative orthopaedic physiotherapy and I currently lead a team of fifteen specialist Physiotherapists providing orthopaedic and musculoskeletal rehabilitation. I have over twenty years' experience working directly with orthopaedic patients both in a hospital and out-patient setting. Over the past fifteen years I have worked as an Expert Witness providing Physiotherapy Medico-Legal Reports.

1.5 I have a specific interest in rehabilitation and work regularly with the pre and post operate management spinal, back, shoulder and hip injuries and with patients following lumbar spine and hip reconstructive surgery. I have provided teaching and lectures to physiotherapists and doctors at orthopaedic conferences on the changes in progression of lower limb treatment and rehabilitation programs.

1.6 I am clinical lead to a large group of independent practices and manage the Clinical Governance for patient rehabilitation. I have assessed and treated numerous lower back and lower limb and soft tissue injuries and currently leading the review process of lower limb rehabilitation pathway protocols for local NHS services as well as undertaking a new clinical trial to review the ‘post-operative management of patients following hip joint surgery and joint replacement surgery’ utilising the use of digital support programs and remote therapy management devices.

I feel my level of expertise is relevant and directly applicable in this case.

### **Professional details**

#### **Membership Registration numbers for practising physiotherapist:**

Chartered Society of Physiotherapy:	xxxxxx
Health and Care Professions Council:	xxxxx
Organisation of Chartered Physiotherapists in Private Practice:	xxxxx
Member of the Medico-Legal Association of Chartered Physiotherapists:	xxxxx

1.7 I confirm that I have received instructions to prepare this report. I am in active clinical practice as a specialist musculoskeletal Physiotherapist treating patients on a regular basis. Those patients include the type of medical problems included in this report. I also undertake regular medico-legal work. Any matters outside my area of expertise will be clearly indicated in this report.

1.8 I understand that my overriding duty is to assist the Court on matters within my expertise and that this duty overrides any obligation to xxxxxxxxx Solicitors or their clients.

1.9 I confirm that I complied with that duty and will continue to do so. I confirm that I am aware of the requirements set out in Part 35 of the Civil Procedure Rules and the accompanying Practice Direction and the Protocol for Instruction of Experts to Give Evidence in Civil Claims.

1.10 My Curriculum Vitae is attached.

## **2.0 SOURCES OF EVIDENCE CONSIDERED**

2.1 I have based this report from information supplied by the Claimant’s Solicitors. The information in preparing this report has been drawn from Medical Reports, Hospital and Physiotherapy Notes and Documentation listed in Appendix 2. I have not examined the claimant and based my opinion on the information supplies at the time of writing this report.

## **3.0 SUMMARY OF THE CASE**

3.0.1 Mr

### **3.1 Report Synopsis**

This report identifies that the physiotherapy treatment received by Mr xxxxxxxxxxxx was of a standard of care, in some areas, that departed from what would be considered to have been provided by a competent body of practitioners. The overall standard of physiotherapy management of his condition was below the standards expected from a competent body of practitioners.

Mr xxxxxxxx, in my opinion, was inappropriately managed by some of the physiotherapy services and on the balance of probabilities contributed to a delay in referral and the final outcome with surgical intervention.

### **3.2 Condition / trauma / procedure – background detail (ref 2 app3)**

A lesion is commonly associated with shoulder instability or trauma to the shoulder joint. It is a depression to the surface of the articular surface that can vary in size and can include injury to other soft tissue structures such as the labrum and

or rotator cuff. The soft tissue trauma can be assessed and quantified during an appropriate examination that would be expected to include specific shoulder tests. The identification of the lesion can be difficult although the initial treatment pathway would be for a course of conservative management.

#### **4.0 BACKGROUND INFORMATION**

4.1 Mr xxxxxxxx was an active gentleman who suffered a fall from his bicycle (xxxxxxx) injuring his left chest and shoulder. He attended xxxxA&E the day following his accident to be assessed by a Physiotherapy Practitioner (5.0 Physiotherapy Management Review).

4.2 Current situation: after some temporary improvement in his condition, Mr xxxxxxx continues to be inhibited with ongoing shoulder discomfort. It is unclear as to the level of activity Mr xxxxxxx has now been able to undertake, however considering the prolonged period of shoulder intervention with his associated degenerative changes, improvement can take up to two years to show moderate improvement following orthopaedic intervention. He is currently still undergoing orthopaedic review and having appropriate physiotherapy rehabilitative management.

#### **5.0 PHYSIOTHERAPY MANAGEMENT**

##### 5.1 Physiotherapy Triage

Mr xxxxxx attended xxxxxx Hospitals NHS Foundation Trust, xxxxxx Hospital A&E on xxxxxxxxxx and was seen by xxxxxxxxxxxxxx, Physiotherapy Practitioner (file ref)

5.1.2 Mr xxxxxx presented with an acute traumatic injury following the fall of his bicycle with left sided chest pain and restricted range and function of his left shoulder.

The examination and assessment (file ref) showed a competent assessment expected from a reasonable body of similar practitioners. The conclusion showed limited active range of motion of the shoulder with severe chest pain on all movements (4+/5). A body chart depicts the pain distribution and the conclusion at this stage was of trauma to the ribs with a soft

tissue injury to the shoulder. Strapping and a physiotherapy assessment referral was made to ensure a thorough examination of the shoulder was undertaken.

### 5.1.3 Comment.

This assessment was to a standard expected from a competent body of practitioners. A referral for further investigations would not have been warranted and the referral for physiotherapy assessment and treatment was appropriate. The appropriate pathway for a condition of similar presentation would be a referral for conservative management.

## 5.2 Physiotherapy assessment and treatment.

5.2.1 A GP letter from xxxxxx Hospital physiotherapist, xxxxxxxxxxxxxxxx identifies a course of physiotherapy that was undertaken between xxxxxx and xxxxxx. The diagnosis of left shoulder subacromial pain syndrome (ref 1 app 3). Treatment consisted of rehabilitation and a steroid injection with an unresolved outcome and Mr xxxxxxxxxxx was discharged with no further recommendations.

### 5.2.1 Comment

- The initial physiotherapy assessment following the examination in A&E would have been pivotal to determine the exact diagnosis and future treatment pathway.
- There are no clinical records for the episode of care. This is a clear failure to document and that includes two physiotherapists, one providing the treatment and rehabilitation and the other providing an invasive procedure (steroid injection) that requires consent and thorough documentation through risk of the procedure (infection).
- The claimants' statement is clear that he undertook a number of sessions of treatment over the documented period which would be consistent with the information provided in the discharge document. What is unclear is the nature, content and standard of care provided. On balance, the standard of care can be assessed by the clinical diagnosis and the outcome of the episode of care that were inaccurate and provided a poor outcome.

- The discharge of the patient without any further management or recommendations represents a failure to escalate. This departs from a reasonable standard of care expected from a competent body of practitioners.
- The failure to escalate also would impact on the management of this case. Without appropriate guidance for the GP the patient is left to seek further intervention as and when the condition deteriorated as with this case. The failure due to a delay in management meant that the claimant received further investigations (MRI) and intervention (orthopaedic surgery xxxxxxxxxxxx) some 5 months later than expected.

### **5.3 Conclusions to physiotherapy management**

5.3.1 The initial assessment and treatment pathway was appropriate for the presenting condition.

5.3.2 The following course of treatment represents a departure from the standard of care expected from a competent body of practitioners for the reasons mentioned above (5.2.1). The diagnosis and management appear inappropriate for the presenting symptoms according to the claimant's statement. As we do not have any medical records, we can presume that the statement is as accurate as can be. As there is no documentation there is no evidence to defend the quality of treatment provided.

The level of restriction, the level of ongoing symptoms and pain would not be consistent or expected with a subacromial impingement. The presentation and lack of progress should have alerted the clinician to expedite further investigations.

5.3.3 A condition that does not respond to appropriate physiotherapy should be referred back to the GP for further investigation or management. This would be expected to be in about 4-6 weeks after the start of the treatment programme if there was a failure to progress the condition or a failure to respond to the conservative input. Therefore, a request to the GP would have been expected by the middle of xxxxxxxxxxxx at the latest, allowing time to process any further findings and to organise an orthopaedic referral.

5.3.4 The advice of an orthopaedic shoulder specialist would be recommended to review the failure to escalate and subsequent delay in management and the negative and long term



affects this would have had on the condition of the shoulder. Undoubtably, the delay would most probably have caused some long-term deterioration and degenerative effects otherwise that would not have occurred but for the delay in management.

## **6.0 IN CONSIDERATION OF SPECIFIC QUESTIONS.**

- 1. *To consider the standard of the assessment carried out on xxxxxxxxxxxxxx***
- 2. *To consider the standard of physiotherapy assessment and treatment that was provided on xxxxxxxxxxxxxx and the following course of treatment (including the exercises provided)***
- 3. *To comment on the standard of record keeping.***
- 4. *Was it reasonable to discharge the claimant on xxxxxxxxxxxxxx? What further treatment plan would be expected to be put in place, and should the claimant have been referred for further investigations or for a specialist opinion?***

6.1 The previous documentation in 5.2 and 5.3 covers the specific questions (1-4) relating to the claimant. The standard of care provided by the physiotherapist for the course of treatment from xxxxxxxxxxxx departed from a reasonable standard expected from a competent body of practitioners.

### **6.2 Points to consider:**

6.2.1 The MRI findings show considerable soft tissue and degenerative trauma. A specialist shoulder surgeon would be able to advice on whether the delay in management caused this further damage or a proportion of the same.

6.2.2 Mr xxxxxxxx's witness statement, paragraph 21 and 22, detail a trip to xxxxxxxxxxxxxx by motorbike in xxxxxxxx. This would have been extremely difficult with the limited function and reduced movement noted in paragraph 22. This might flag up some further queries.

## **7.0 CONCLUSIONS:**

Considering all the components of the management of the claimant I would conclude the following:

1. The initial physiotherapy assessment on xxxxxxxxxxxxxx was appropriate and provide a good standard of care and followed the expected clinical pathway.

2. The referral for formal physiotherapy, a further assessment and treatment of the shoulder was appropriate however, the standard of care departed from an expected level of competent practitioners causing the following:
  - a. A failure to identify
  - b. A failure to escalate
  - c. A failure to document
  - d. A failure due to delay in management
  - e. A longer-term detrimental effect on the condition and recovery.

## **8.0 OPINION**

In my opinion, the standard of care for the course of physiotherapy treatment and management (xxxxx to xxxxxxx) departed from the level expected from a competent body of practitioners.

## **9.0 DECLARATION**

### **Statement of Compliance**

I understand my duty as an expert witness is to the court. I have complied with that duty and will continue to comply with it. This report includes all matters relevant to the issues on which my expert evidence is given. I have given details in this report of any matters which might affect the validity of this report. I have addressed this report to the court. I further understand that my duty to the court overrides any obligation to the party from which I received instructions (*Practice Directions 35 para 3.2 (9) (a) and Guidance para 52*)

### **Declaration of Awareness**

I confirm that I am aware of the requirements of Part 35 and Practice Direction 35, and the Guidance for the Instruction of Experts in Civil Claims 2014. (*Practice Directions 35 para 3.2 (9) (b)*).

### **Statement of Truth**

I confirm that I have made clear which facts and matters referred to in this report are within my own knowledge and which are not. Those that are within my knowledge I confirm to be true. The opinions I have expressed represent my true and complete professional opinions on the matters to which they refer (*Practice Direction 35 para 3.3 and Guidance para 53*).

### **Statement of Conflicts**

I confirm that I have no conflict of interest of any kind, other than any which I have already set out in this report. I do not consider that any interest which I have disclosed affects my suitability to give expert evidence on any issue on which I have given evidence and I will advise the party by whom I am instructed if, between the time of this report and the trial, there is any change in circumstances which affects this statement.

**xxxxxxxxxxxxxxxxxxxxx Grad Dip Phys, MCSP, MHCP, MSOM, MAE**

Chartered and Health and Care Professions Council Registered Physiotherapist

Partner of the White House Medico-Legal Services

**APPENDIX 1 - Background Information Relating to the Expert.**

1. The White House Medico-Legal Services - consists of a Multi-Disciplinary Team of Consultant and Senior Nurses, Chartered and Health and Care Professions Council Registered Senior Physiotherapists, Consultant Occupational Therapists each specialising in their own particular area. Cases covered include adults and children severely disabled through road traffic accidents or by medical negligence resulting in such injuries as head injuries, spinal injuries and cerebral palsy as well as sporting and industrial accidents and straightforward orthopaedic accidents resulting in whiplash, back injuries, amputation, fractures and soft tissue injuries besides simple tripping and slipping accidents. Professional Negligence Reports are also prepared on Nursing and Physiotherapy Issues. Cases are undertaken on behalf of the Claimant, Defendant and as Single Joint Expert.
2. The Expert's specialist field is in the treatment of bones, joints and soft tissue injuries. He has twenty years post-graduate experience in the treatment of orthopaedic injuries and has undertaken an extensive programme of continuing professional development in this field.
3. Mr Howard has over fifteen years experience working directly with orthopaedic patients both in a hospital and outpatient setting. Over the past twelve years he has worked as an Expert Witness providing Physiotherapy Medico-Legal Reports and has had extensive training and attended courses for medicolegal report writing and court room skills. He regularly provides Medicolegal Reports and has experience as an expert in joint conferences, working as a Single Joint Expert and has attended court representing both claimant and defendant cases for the court.

**APPENDIX 2 - Documents Considered**

Letter of Instruction –
GP Records
xxxxx Hospitals of xxxxxxxxxxxxxx NHS Foundation Trust Records
xxxxxxxxx Hospitals NHS Foundation Trust Records
Witness Statement of xxxxxxxxxxxxxx dated xxxxxxxx
Complaints Response from Trust dated xxxxxxxx
Schedules of Radiology University Hospitals of xxxxxxxxxxxxxx NHS Foundation Trust

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### **APPENDIX 3 - References**

Reference 1: Subacromial pain syndrome and differential diagnosis

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4062801/>

Guideline for diagnosis and treatment of subacromial pain syndrome

Reference 2: Hills-Sachs lesion : background detail

The Hill-Sachs lesion is an osseous defect of the humeral head that is typically associated with anterior shoulder instability. The incidence of these lesions in the setting of glenohumeral instability is relatively high and approaches 100% in persons with recurrent anterior shoulder instability. Reverse Hill-Sachs lesion has been described in patients with posterior shoulder instability. Glenoid bone loss is typically associated with the Hill-Sachs lesion in patients with recurrent anterior shoulder instability. The lesion is a bipolar injury, and identification of concomitant glenoid bone loss is essential to optimize clinical outcome. Other pathology (eg, Bankart tear, labral or capsular injuries) must be identified, as well. Treatment is dictated by subjective and objective findings of shoulder instability and radiographic findings. Nonsurgical management, including focused rehabilitation, is acceptable in cases of small bony defects and nonengaging lesions in which the glenohumeral joint remains stable during desired activities. Surgical options include arthroscopic and open techniques.

<https://www.ncbi.nlm.nih.gov/pubmed/22474094>

Quantifying bone loss is important to decide the best treatment for patients with recurrent anterior glenohumeral instability. Currently, there is no standard method available to make a precise evaluation of the Hill–Sachs lesion and predict its engagement before the surgical procedure. This literature review was performed in order to identify existing published imaging methods quantifying humeral head bone loss in Hill–Sachs lesions.

<https://online.boneandjoint.org.uk/doi/full/10.1302/2058-5241.4.180031>

Quantifying bone loss is of utmost importance to decide the best treatment for recurrent anterior glenohumeral instability patients. This is the determinant factor influencing the choice of the surgical technique: soft tissue procedure or bone block procedure.<sup>2</sup> It has been extensively reported in the literature that the limit of glenoid bone loss above which an arthroscopic Bankart repair may fail is  $\geq 25\%$  of the glenoid width. This percentage is equivalent to  $\geq 20\%$  of the surface area created by a best-fit circle on the inferior surface of the glenoid.<sup>3</sup>

There is not currently a consensus on the accuracy of the available methods to make a precise evaluation of the HSL radiographically, nor to predict its engagement before surgery. Its contribution to instability depends on the size, direction, and location of the bone defect.<sup>4</sup> This difficulty may be explained by the three-dimensional aspect of the humeral sphere, its retroversion and its rotational position during imaging

**Hill-Sachs lesions** are a posterolateral humeral head compression fracture, typically secondary to recurrent [anterior shoulder dislocations](#), as the humeral head comes to rest against the anteroinferior part of the glenoid. It is often associated with a [Bankart lesion](#) of the glenoid.

**Bankart lesions** are injuries specifically at the anteroinferior aspect of the glenoid labral complex and represent a common complication of [anterior shoulder dislocation](#). They are frequently seen in association with a [Hill-Sachs lesion](#).

Strictly speaking, a "Bankart lesion" refers to an injury of the labrum and associated glenohumeral capsule/ligaments (see *History and etymology* below). Injury to these reinforcing soft tissue structures is thought to predispose to recurrent dislocation

The same mechanism of compression can result in a Hill-Sachs lesion. Bankart and Hill-Sachs lesions are 11x more likely to occur together than isolated injuries

A Hill-Sachs lesion is a compression fracture or "dent" of the posterosuperolateral humeral head that occurs in association with anterior instability or dislocation of the glenohumeral joint.<sup>[1][2]</sup> It was first described by two radiologists by the name HA Hill and MD Sachs in 1940.<sup>[2]</sup> This lesion is caused by an anterior [shoulder dislocation](#) which causes a humeral head impression fracture. The posterolateral aspect of the humeral head impacts on the anterior glenoid in the dislocated position, causing [instability](#) at the glenohumeral joint

The glenoid of the [scapula](#) articulates with the [humeral head](#) to form a ball-and-socket joint.<sup>[6]</sup>

## Labrum

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The [labrum](#), a fibrocartilaginous structure, surrounds the glenoid to ensure that there is enough contact between the surface of the glenoid and the humeral head. There is a concavity compression mechanism which plays an important role in the stability of the shoulder. The less contact there is, the higher the risk for [dislocations](#).<sup>[8]</sup>

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## Ligaments

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- Glenohumeral ligaments (pars superior, media and inferior): Assists in strengthening of the capsule<sup>[3]</sup>
- Coracohumeral ligament: Assists in strengthening of the capsule<sup>[3]</sup>
- Transversal humeral ligament: Functions with the **Biceps Brachii** muscle<sup>[6]</sup>

Conservative treatment is only recommended in cases of small bony defects (<20% **Hill-Sachs lesion**), in other cases (larger and more significant **lesions**), surgical treatment is needed. The conservative treatment should be based on strengthening the deltoid, the rotator cuff muscles and scapular stabilizers.

[N Am J Sports Phys Ther](#). 2006 Feb; 1(1): 16–31.

PMCID: PMC2953282

PMID: [21522197](#)

### Non-Operative Rehabilitation for Traumatic and Atraumatic Glenohumeral Instability

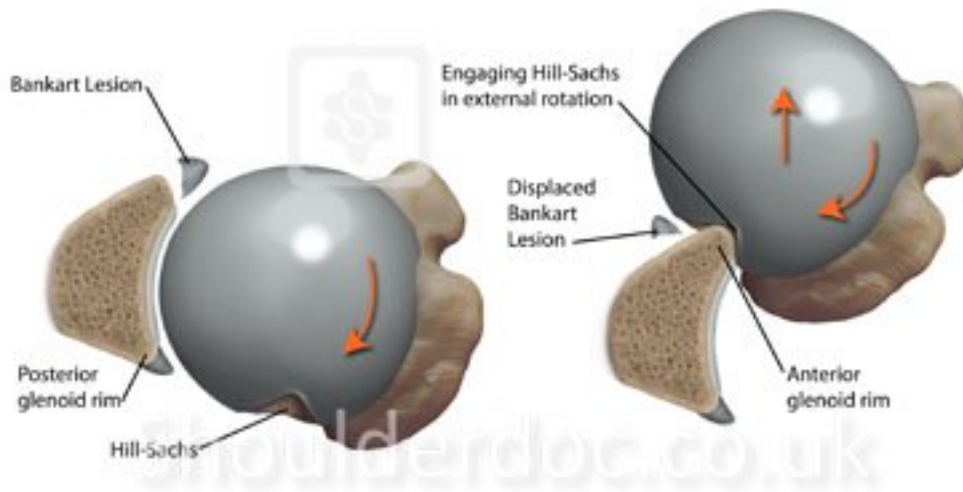
[Kevin E. Wilk](#), PT, DPT,<sup>a</sup> [Leonard C. Macrina](#), MSPT,<sup>a</sup> and [Michael M. Reinold](#), PT, DPT, ATC<sup>a</sup>  
Glenohumeral joint instability is a common pathology encountered in the orthopaedic and sports medicine setting. A wide range of symptomatic shoulder instabilities exist ranging from subtle subluxations due to contributing congenital factors to dislocations as a result of a traumatic episode. Non-operative rehabilitation is utilized in patients diagnosed with shoulder instability to regain their previous functional activities through specific strengthening exercises, dynamic stabilization drills, neuromuscular training, proprioception drills, scapular muscle strengthening program and a gradual return to their desired activities. The specific rehabilitation program should be varied based on the type and degree of shoulder instability present and desired level of function.

<https://www.shoulderdoc.co.uk/article/1470>

### Hill-Sachs Lesion

Hill-Sachs lesion = a dent in the back of the humeral head which occurs during the **dislocation** as the humeral head impacts against the front of the glenoid. Described in 1940 by two American radiologists, Harold Arthur Hill (1901-1973) and Maurice David Sachs (1909-1987). The depth of the lesion reflects the amount of damage to the opposite side of the joint—the **anterior** capsule and the **labrum**. Therefore larger Hill-Sachs lesions are associated with higher risks of recurrent dislocations.





Treatment:

- *Small lesions (<1/8th of the area)- don't need any treatment*
- *Medium lesions (<1/8th to 1/4) - can be treated by an **arthroscopic remplissage procedure**, where the defect is 'filled in' with the posterior capsule and rotator cuff.*
- *Large lesions (>1/4) - are best filled in with either bone or a metal implant (depending on surgeon preference). This is very rare.*

<https://www.shoulderdoc.co.uk/search/search/hill-sachs/2>

## **APPENDIX 4 - Glossary of Terms**

Here is a list of common terms and their meanings in relation to physiotherapy reports.

### A

**Abduction** – Where part of the body or prosthesis is angled away from the midline of the body

**Adduction** – Where part of the body or prosthesis is angled towards the midline of the body

**Alignment** – The way the prosthesis is set up, mainly referring to the angle of the socket and foot

**AFO (Ankle Foot Orthosis)** – a brace that is prescribed to support or control the ankle

**Ankle disarticulation** – Usually called a Symes amputation that involves amputation through the ankle joint

**Atrophy** -The reduction in the size of a muscle, often from disuse

### B

**Bilateral** – both sides

### C

**Check socket** – A temporary socket used for testing the fit and alignment of a prosthesis before a permanent socket is made

**Cosmesis** – A cosmetic cover over the mechanical elements of a prosthesis

**Congenital limb deficiency** – Absence of part or all of a limb at the time of birth

### D

**Digital amputation** – Amputation of a toe or finger

**Dorsiflexion** – resultant posture of the foot when the toes are pulling up

**Donning** – The act of putting a prosthesis or orthosis on

**Dynamic foot** – A type of prosthetic foot that stores and releases walking energy to more realistically replicate the action of a natural foot to promote walking action

### E

**Oedema** – Swelling or excess fluid in a body part

### F

**Femur** – Thigh bone

**Fibula** – Thinner of the two bones that form the shin

**Forequarter amputation** – an amputation that removes part of shoulder and the arm

### G

**Gait analysis** – A review of a persons walking pattern, especially when wearing a prosthesis

### H

**Hemipelvectomy** – Amputation of the leg that also involves the removal of part of the pelvis with the limb, also called a hindquarter amputation

**Hip disarticulation** – Amputation of the leg through the hip joint

### I

**Ischial tuberosity** – A thick part of the pelvis in the buttocks, used to take weight in above knee prosthesis. The ischium (commonly called the sitting bone)

### K

**Knee disarticulation** – Amputation through the knee joint

L

**Liner** – A removable sleeve that fits over the stump/residual limb and acts as a cushion and interface with the socket of the prosthesis. Formed from gel, foam or plastic.

M

**Multiaxial foot** – A type of prosthetic foot that imitates ankle movement, so allowing better control and balance on uneven ground

N

**Neuroma** – A collection of fibrous tissue around the end of a severed nerve.

O

**Osseointegration** – a direct structural and functional connection between living bone and a load-bearing artificial implant -typically made of titanium

P

**Patella** – Kneecap

**Patella tendon** – A thick tendon that can be felt between the kneecap and the top of the shin, it takes weight well so is often used for support in below knee prostheses

**Pylon** – The pole/strut of the prosthesis that gives it height

**Plantarflexion** – resultant posture of the foot where the toes point down

**Phantom pain** - The feeling of pain/discomfort in the absent limb following an amputation

**Phantom sensation** – Sensory awareness of the part of an amputated limb that is no longer present – a non-painful condition

**Pistoning** – The movement of the socket relative to the residual limb due to poor fit or lack of suction/friction

**Prosthesis** – An artificial limb worn following amputation of a body part

**Prosthetist** – A professional specialising in the design, manufacturer and fitting of artificial limbs

**Patella Tendon Bearing (PTB)** – a type of below knee prosthesis in which much of the weight is taken on the patella-tendon. Usually uses a cuff around the thigh to hold it on

R

**Residual limb** – another term for the stump formed following part amputation of a limb

**Rigid dressing** – A hard fibreglass cover for the stump often fitted shortly after an amputation, for protection. Not worn long-term

S

**Sach Foot** – A type of lightweight prosthetic foot that has a fixed ankle

**Shoulder disarticulation** – Amputation at the shoulder joint

**Shrinker** – A compression sock specifically for stumps, used to control swelling following amputation surgery

**Silicon/gel liner** – A type of liner made of a rubbery synthetic material which rolls onto the stump

**Silicon suspension (SSS)** - A gel liner with distal pin that engages in a lock inside the prosthesis for suspension

**Sleeve suspension** - A sleeve that is rolled over a below the knee prosthesis and onto the thigh for suspension

**Stump volume** – a term that describes the size of the stump in relation to the socket of the prosthesis to be used

**Socket relief** - The space/void created in a prosthetic socket to reduce pressure over sensitive or bony areas of the stump

**Stump sock** – A liner made specifically for stumps, worn with the prosthesis

**Suspension** – How the prosthesis is held on

**Supracondylar prosthesis (PTS)** – Similar to PTB but comes in and over the knee to hold it on

**Symes amputation** – Amputation of the foot through the ankle joint

T

**Transmetatarsal-phalangeal amputation (TMP)** – Amputation of the toes through the ball of the foot

**Transmetatarsal amputation (TMT)** – Amputation of the toes to just behind the ball of the foot

**Transfemoral** – An above knee amputation

**Transhumeral** – An above elbow amputation

**Transtibial** – A below the knee amputation

**Transradial** – A below the elbow amputation

**Tibia** – The larger of the two bones that form the shin

U

**Ulcer** – A lesion or opening of the skin

**Unilateral** – Affecting only one side

V

**Volume loss** – A description of the change in stump shape/size that can result in an ill fitting prosthesis

**Volume changes** – Fluctuation in the size and shape of the stump, related to body fluid levels and caused by changes in the weather, health etc. Makes a consistent fit of the prosthesis difficult

W

**Wrist disarticulation** – Amputation through the wrist joint

**Walking aids** - examples: <http://www.rica.org.uk/content/walking-aids>

**APPENDIX 5: Summary CV**