

日本財団パラリンピックサポートセンター

# パラリンピック研究会

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# パラリンピック研究会 紀要

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# 障がい者スポーツにまつわるパラドックス —パラリンピックの課題を探って—

小倉和夫

## 序章 問題提起

ここ数年で、パラリンピックをはじめとした障がい者スポーツへの関心は高まっており、競技観戦や体験の機会の増加が顕著となっている。こうした傾向の社会的意義として、しばしば、二つの点が挙げられる。一点目は、障がい者を鼓舞し、能力向上や社会参加を促進する刺激剤となりうること、二点目は、社会における障がい者への意識改革や物理的、心理的環境整備の促進への触媒となりうることである。しかし、この二つの点が機能するためには、パラリンピックをはじめ障がい者スポーツが、選手やその関係者のみならず、一般の障がい者ならびに健常者により「身近な」ものとして影響を及ぼし、波及効果を生むことが前提となる。そのためにも、競技の普及、選手の知名度、知識の伝播などが必要であるが、その実現過程は、いくつかの潜在的、あるいは顕在化しつつある問題をはらんでいる。問題の中核は、特定の目的と効果がポジティブな結果だけではなく、それに矛盾する結果も生むところにある。研究者の中には、こうした問題を「パラリンピックのパラドックス (Paralympic paradox)」と呼ぶ者もいる<sup>1</sup>。

たとえば、障がいのある選手が成功をおさめ、その知名度を上げることは、パラリンピックをはじめ障がい者スポーツ大会や関連活動、競技への社会的関心を高める効果を持ちうるが、その過程は、障がいのある選手が「障がい者」という範疇から、「(障がいの有無は関係のない) 一人のアスリート」という範疇に入ることを含意している。その結果、ややもすると、選手は尊敬の対象とはなっても、多くの一般の障がい者にとっては自己とは遠い存在になるため、選手の活躍が一般の障がい者をスポーツ参加へと促し、それが障がい者スポーツの裾野の広がりにつながっていくかどうかには判然としないところがある。いってみれば、「障がい克服」されたとたんに「障がい」が希薄となるともいえる。加えて、社会一般との関連では、障がい者スポーツが人々を鼓舞し、自立心の向上や自己開発意欲への刺激を与えるとの考えは、健常者側の見方ではないかとの疑問もある。ここでは、そもそも「パラリンピックとは真に誰のためのものか」「障

が「障がい者スポーツの意義とはなにか」が問われているともいえる。

以上のような問題意識から、パラリンピックおよび障がい者スポーツにまつわるパラドックスならびに乖離や格差の現状分析と問題点を、メダリストとノンメダリスト間の格差、「選手」と一般障がい者との乖離、障がい種別の格差、障がい者団体と障がい者スポーツ競技団体との関係、中央と地方との格差、男女格差、国際的格差の7項目に分けて考察したい。なお、そもそも障がい者スポーツと健常者スポーツ、あるいはパラリンピックとオリンピックとの間に格差があり、それが障がい者スポーツのパラドックスに影響している面があると思われるが、その点については本論考では特に取り上げない。

## 1. メダリストとノンメダリスト間の格差

パラリンピックの認知度が上がり、スポーツないし競技として興味をもつ者が増えるにつれて、パラリンピアン、とりわけメダリストについての報道も増え、それに伴いメダリストのファンが増えるのは当然である。そうした傾向は、パラリンピックへの一般の関心をさらに高めることにもなる。しかしながら、メダルを獲得した選手（メダリスト）と獲得しなかった選手（ノンメダリスト）について世間の注目度や評価が著しく異なり格差が拡大すると、パラリンピック大会への参加の目的がメダル獲得となり、競技能力向上のための選手育成に重点がおかれ、パラリンピックが持つ社会的意義が軽視されるおそれがある。

こうした観点から、まず注目度についての一つの指標として、新聞記事（朝日新聞（図1）、日経新聞（図2）、読売新聞（図3））における各パラリンピック大会毎のメダリストとノンメダリストに関する記事数の比較を行った。調査方法は、各社のデータベース上にある2009年～2018年の記事を「パラリンピック」をキーワードに抽出、記事1件毎に「個人名」が記載されているか否かを判断し、記載されている場合に記事内容を確認し、該当記事を抽出した。その結果、双方の記事数には相当の開きがあり、メダリストがいわば、メディアによって「スター化」され、ノンメダリストとの間に格差が生じていることが確認された。

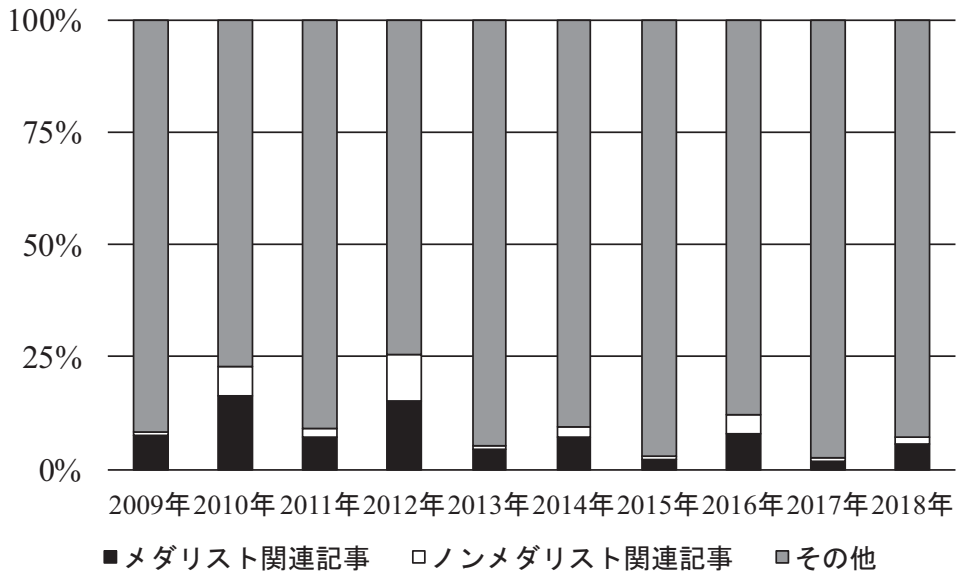


図1 朝日新聞データベースにおける各年のメダリストとノンメダリスト記事の割合推移  
朝日新聞社データベース「聞蔵IIビジュアル」(朝夕刊)を基に永松陽明研究員作成。

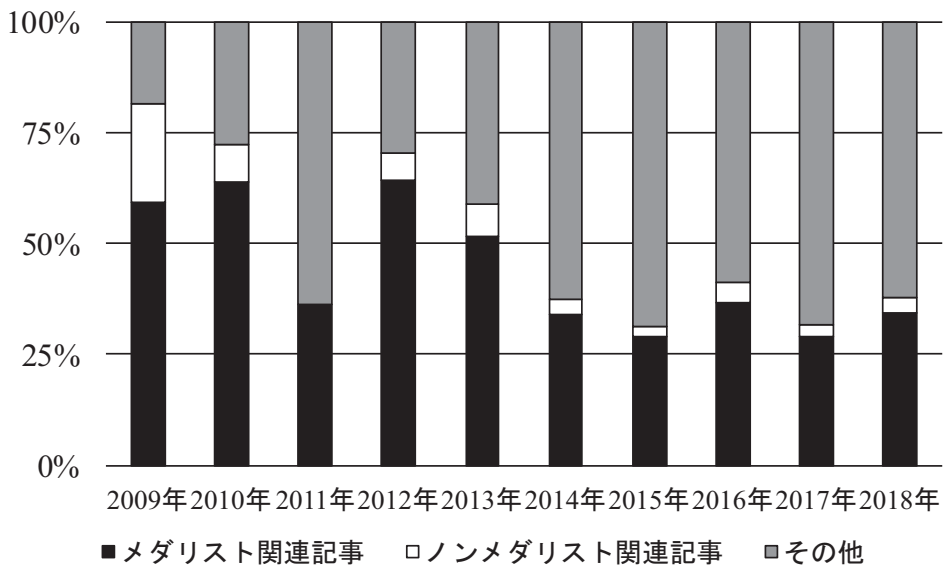


図2 日経新聞データベースにおける各年のメダリストとノンメダリスト記事の割合推移  
日本経済新聞社データベース「日経テレコン21」(日経新聞朝夕刊)を基に永松陽明研究員作成。

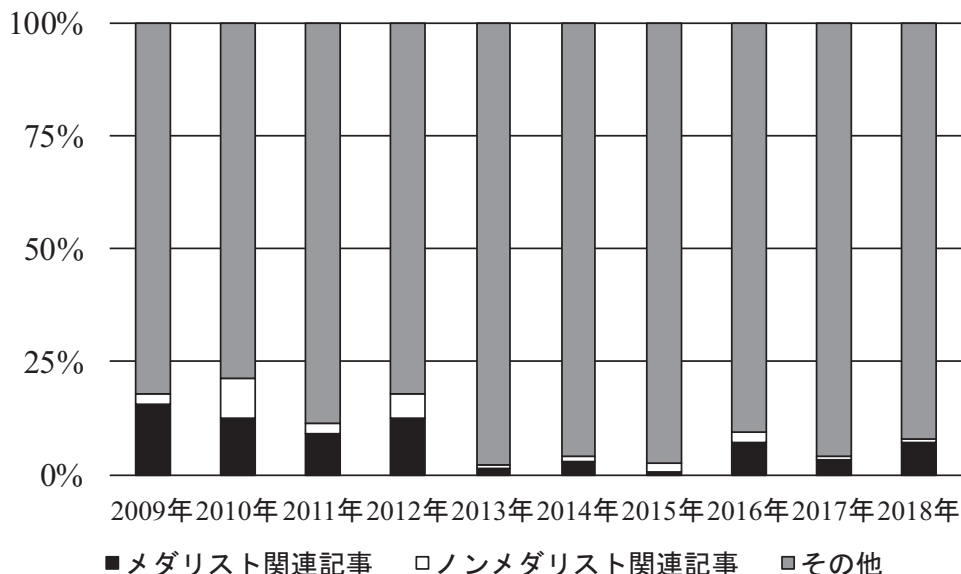


図3 読売新聞データベースにおける各年のメダリストとノンメダリスト記事の割合推移  
読売新聞社データベース「ヨミダス歴史館」を基に永松陽明研究員作成。

また、上記は選手全体の記事数の比較であるが、平昌2018パラリンピック冬季競技大会（以下「平昌パラ大会」と略す）に出場した日本人選手に限定しメダリスト個人に関する記事数と、ノンメダリスト個人についての記事数の比較分析を行うと、表1のような結果が得られ、ここでも、メダリストとノンメダリスト間にかかなりの差がみられた。

こうした傾向は、単に選手の認知度のみならず、スポンサーの獲得、練習環境、収入面などでメダリストとノンメダリストとの格差拡大につながるおそれがある。とりわけ、近年、表2のように、メダル獲得に伴う報奨金が増額されており、待遇面の格差拡大を象徴している。

メダリストとノンメダリストの格差が生ずる原因の一つは、メダル獲得に大きな期待と関心がよせられるからであり、その背後には、金メダル数について目標を定めていることも影響していると考えられる。たとえば、日本パラリンピック委員会は、当初、東京2020パラリンピック競技大会（以下「東京パラ大会」と略す）における金メダル目標数を22個<sup>2</sup>、金メダルランキング7位としていた（ただし、最近ではランキングのみを公表している<sup>3</sup>）。カナダは、平昌パラ大会の金メダル獲得目標数として、前回のソチパラ大会の獲得数16個以上を目標とした<sup>4</sup>。英国は、リオ2016パラリンピック競技大会（以下「リオパラ大会」と略す）において少なくとも合計121個のメダルを獲得することを目標に掲げた<sup>5</sup>。他方、米国は非公式には目標を持つと言われるものの公表はしておらず、また、オーストラリアでは、シドニー2000パラリンピック競技大会において、「アスリー

表1 平昌パラ大会出場全日本人選手のメダル獲得総数と新聞記事総数\*

選手名	メダル獲得の有無	メダル総数 (平昌パラ大会以外も含む)	記事総数
新田佳浩	○	5	373
山本篤	○	3	268
森井大輝	○	5	262
狩野亮	○	4	248
村岡桃佳	○	5	237
鈴木猛史	○	3	193
成田緑夢	○	2	148
三澤拓		0	136
出来島桃子		0	124
佐藤圭一		0	104
阿部友里香		0	96
小池岳太		0	77
須藤悟		1	73
夏目堅司		0	69
上原大祐		1	64
新田のんの		0	57
小栗大地		0	50
本堂杏実		0	45
高村和人		0	44
星澤克		0	43
川除大輝		0	41
福島忍		1	38
岩本啓吾		0	36
高橋和廣		1	35
三澤英司		1	32
吉川守		1	30
熊谷昌治		0	29
高橋幸平		0	25
安中幹雄		1	18
柴大明		0	15
児玉直		0	14
中村稔幸		1	11
堀江航		0	11
望月和哉		0	11
南雲啓佑		0	10
塩谷吉寛		0	9
廣瀬進		0	9
石井英明		0	6

\*記事総数のベースデータは、「ヨミダス歴史館」「聞蔵Ⅱビジュアル」「日経テレコン21」。調査期間は各データベースが提供する最長の期間を利用。ただし、読売新聞はデータベースの都合上「平成」のみに絞っている。また、検索は人名に「パラ」を加え、同姓同名の除去を行った。

上記のデータベースを基に永松陽明研究員作成。



表2 日本パラリンピック委員会による報奨金額の推移

開催時期	開催地	概要
2008年	北京（夏季）	金：100万円 銀：70万円 銅：50万円
2010年	バンクーバー（冬季）	金：100万円 銀：70万円 銅：50万円
2012年	ロンドン（夏季）	金：100万円 銀：70万円 銅：50万円
2014年	ソチ（冬季）	金：150万円 銀：100万円 銅：70万円
2016年	リオデジャネイロ（夏季）	金：150万円 銀：100万円 銅：70万円
2018年	平昌（冬季）	金：300万円 銀：200万円 銅：100万円

読売新聞夕刊（2008年9月4日）、朝日新聞朝刊（2014年5月21日）、日本経済新聞朝刊（2018年3月27日）を基に永松陽明研究員作成。

トへのプレッシャーを最小限にとどめるため」あえて目標値を掲げなかったとされる<sup>6</sup>。こうした、各国の状況を鑑みると、獲得メダル数の目標値を掲げることが、どこまでメダリストとノンメダリスト間で、注目度などについての格差を広げる要因になるかに関しては、目標値の公表の有無、目標が金メダル数かメダル総数かなど、いくつかの要素を勘案せねばならないであろう。

また、パラリンピック大会に出場したメダリストへの報道の集中が一時的にあったとしても、そもそもパラリンピック選手の社会における認知度は、オリンピック選手と異なりいまだに限定的であり、現段階においては、格差を云々するよりも、まず、メダリスト、ノンメダリストに関係なくパラリンピック選手についての報道をさらに増やし、深化させることこそが重要であるとの意見も十分傾聴に値するであろう。現に、平昌パラ大会で5個のメダルを獲得し、多くの記事の対象となった村岡桃佳選手が、平昌パラ大会後の2019年1月31日に障害者アルペンスキーワールドカップ女子スーパー複合の座位で優勝した際、朝日新聞、日経新聞、読売新聞のうち、朝日新聞朝刊と読売新聞朝刊で数行報じられた程度であった<sup>7</sup>。これは、パラリンピックのメダリストであっても、必ずしも「スター」にはなっていないことを暗示しているともいえよう。

## 2. 「選手」と一般障がい者との乖離

パラリンピック大会に出場する選手あるいは、パラリンピック大会を目指し国内や国際大会に出場するような者を「選手」と定義すると、メダリストのように優秀な競技成績を残す「(エリート)選手」になればなるほど、自分たちを「障がい者」としては見なさず、「(障がいの有無は関係のない)ひとりのアスリート」として評価してほしいという発言をしばしばする。こうした傾向は、正に、一般の障がい者との断絶（あるいは

潜在的断絶)を象徴しているともいえる。すなわち、パラリンピック大会に出場する選手あるいはその関係者が、競技能力を高め、メダル獲得を目指し、「障がい者」ではなく「ひとりのアスリート」として認知されることを目指せば目指すほど、そうした選手は一般の障がい者にとっては異次元の人となっていく。ここに、一般の障がい者をスポーツを通して勇気づけたい、社会参加へと促したいとするパラリンピック本来の目的とのパラドックスが生まれる。この点は、日本財団パラリンピックサポートセンターがNHK放送文化研究所と共同で実施した「パラリンピックと放送に関する研究」調査結果にもその傾向が見られる。

表3にあるように、18歳以上の障がい当事者が回答したパラリンピックへの関心度(「大変関心がある」「まあ関心がある」と答えた者)の平均値は36.2%に過ぎなかった。もっとも、この比率は健常者のパラリンピックへの関心度の平均値(28.3%)よりは高いが、同じ回答者のオリンピックへの関心度の平均値57.9%と比べると相当に低く、ここでも、「選手」と一般の障がい者間の溝を垣間見ることができるともいえよう。

こうした「選手」と一般の障がい者との乖離は、個人の意識レベルにおきかえて考えると、そもそも、「アスリート」という自己規定と「障がい者」という自己規定の間に乖離があるともいえる。すなわち、一般の障がい者にとっては、「障がい者であること」は自己規定の大きな部分であるが、多くの「選手」にとっては、「アスリート」であることが自己規定の大きな部分をしめるとも考えられる。報道において、パラリンピックが、社会面などで障がい者の活躍物語りとして報じられるよりも、スポーツ面で伝えられれば伝えられるほど、「選手」は一般障がい者から遠のいてゆくともいえる。

この問題は、障がい者アスリートの成績が優秀であればあるほど、一般の障がい者にとって自分たちに同じことを求められても無理であるという感情を誘発し、それが、両者間の溝を深めてゆくともいえる。この点について、Overboe(2009)は次のように記述している<sup>8</sup>。

Paradoxically, the image of the disabled hero validates the lived experience of a few disabled people and invalidates the lived experience of the majority of disabled people because they cannot meet such expectation.

(逆説的に言えば、障がいのあるヒーロー像は、少数派の障がい者の人生経験を正当化し、そうした期待には応えられない多数派の障がい者の人生経験を否定するということだ。)

表3 平昌オリンピック大会、平昌パラ大会への関心度

		関心度_オリンピック Base = 対象者全員						関心度_パラリンピック Base = 対象者全員								
		%						%								
	標本数 (人)	大変関 心があ る	まあ関 心があ る	どちら ともい えない	あまり 関心が ない	まった く関心 がない	■関心 あり 計	■どち らとも +関心 なし 計	大変関 心があ る	まあ関 心があ る	どちら ともい えない	あまり 関心が ない	まった く関心 がない	■関心 あり 計	■どち らとも +関心 なし 計	
本人回答	【本人回答 計】	1275	26.3	31.5	15.1	8.9	18.1	57.9	42.1	11.0	25.2	25.0	16.8	21.9	36.2	63.8
	【身体障がい 計】	1000	29.9	37.8	14.3	8.5	9.5	67.7	32.3	11.6	32.9	22.4	19.9	13.3	44.5	55.5
	視覚障がい	250	29.7	38.1	9.6	11.2	11.4	67.8	32.2	15.3	31.3	19.3	18.4	15.7	46.6	53.4
	聴覚障がい	150	32.3	42.8	12.9	5.0	7.0	75.1	24.9	19.6	44.2	17.7	9.4	9.1	63.8	36.2
	肢体不自由	500	25.8	36.0	15.3	11.8	11.2	61.7	38.3	11.0	31.5	23.3	18.5	15.7	42.5	57.5
	内部障がい	100	36.8	39.4	14.3	2.9	6.6	76.3	23.7	9.4	32.7	22.9	25.7	9.3	42.1	57.9
	知的障がい	75	30.7	21.3	21.3	4.0	22.7	52.0	48.0	18.7	25.3	25.3	6.7	24.0	44.0	56.0
	精神障がい	100	25.0	29.0	18.0	10.0	18.0	54.0	46.0	7.0	21.0	28.0	21.0	23.0	28.0	72.0
	発達障がい	100	23.0	29.0	12.0	9.0	27.0	52.0	48.0	13.0	21.0	25.0	11.0	30.0	34.0	66.0
	【代理回答18歳未満 計】	400	8.4	25.4	16.9	15.4	33.9	33.8	66.2	4.1	14.0	20.5	21.6	39.9	18.0	82.0
代理回答	身体障がい	55	3.6	32.7	14.5	18.2	30.9	36.4	3.6	20.0	12.7	25.5	38.2	23.6	76.4	
	精神障がい	262	8.4	24.0	16.8	18.7	32.1	32.4	3.1	14.1	19.8	23.3	39.7	17.2	82.8	
	知的障がい	83	10.8	24.1	18.1	8.4	38.6	34.9	6.0	10.8	25.3	16.9	41.0	16.9	83.1	
18歳以上	100	11.0	23.0	17.0	10.0	39.0	34.0	66.0	6.0	15.0	22.0	18.0	39.0	21.0	79.0	
健全者	500	21.6	35.3	12.3	11.1	19.7	56.9	43.1	6.2	22.1	26.2	19.0	26.4	28.3	71.7	

出典：日本財団パラリンピックサポートセンター・NHK放送文化研究所、2018年、「パラリンピックと放送に関する研究」。

また、こうした個人レベルの違和感ないし乖離の裏には、社会的な意味があるという見方も可能である。なぜならば、高い競技能力を持つアスリートへの礼讃は、「障がいの克服」が、個人の努力や意欲によるとの見方を知らずのうちに社会に植え付けることになりかねず、それを無意識のうちに否定する心理が一般の障がい者側に「違和感」という形で沈殿していると考えられることのできるからである。

### 3. 障がい種別の格差

障がい者スポーツにおいても、競技や種目により社会的認知度や関心が異なるが、それに加え、障がいの種類別にパラリンピック大会への関与において格差がみられる。

便宜的に障がいを、身体、視覚、聴覚、知的の四つに分類すると、まず、パラリンピックに参加していない聴覚障がい者独自の国際大会「デフリンピック大会」がある。デフリンピック大会とパラリンピック大会について、その参加国数、参加人数、競技数を比較すると表4の通りであり、その規模にかなりの違いがあることがわかる。

表4 パラリンピック大会とデフリンピック大会の参加国数、参加人数、競技数

大会名	夏季大会		冬季大会	
	パラリンピック (2016年リオデ ジャネイロ)	デフリンピック (2017年サムス ン)	パラリンピック (2014年ソチ)	デフリンピック (2015年ハンティ マンシースク)
参加国数	159+IPA	86	45	27
参加人数	4,328	2,873	541	336
競技数	22	19	5	5

国際ろう者スポーツ委員会のデフリンピック公式ページ (“Games,” <https://www.deaflympics.com/>, (May 27, 2019)), 第23回夏季デフリンピック競技大会サムスン2017公式ホームページ (“Sports,” [www.deaflympics2017.org](http://www.deaflympics2017.org), (May 27, 2019)) および IPC データベース (“Paralympic Games,” <https://www.paralympic.org/paralympic-games>, (May 27, 2019)) を基に筆者作成。

また、新聞報道面での扱いを見ても、たとえばリオパラ大会についての報道数と、2017年のトルコ、サムスンで開催されたデフリンピック大会の報道数とを比較すると、表5のように大きな差がある。とりわけ、デフリンピック大会の新聞報道記事には写真の掲載はほとんどなく、また、テレビの実況放送も皆無であった。

表5 パラリンピック大会とデフリンピック大会新聞3紙報道記事数比較

大会名	朝日新聞	読売新聞	毎日新聞	合計
パラリンピック (2016年リオデジャネイロ)	301	373	335	1,009
デフリンピック (2017年サムスン)	21	23	9	53

検索ワードは、リオ大会では「パラリンピック」、サムスン大会では「デフリンピック」を使用。検索期間は開会式から閉会式まで（リオ大会：2016年9月7日～18日、サムスン大会：2017年7月18日～30日）。各紙ともに、朝刊・夕刊・地方版を含む。「聞蔵Ⅱビジュアル」「ヨミダス歴史館」、毎日新聞データベース「毎索」を基に中村真博研究員作成。

こうした報道数の格差も反映して、パラリンピック、デフリンピック、スペシャルオリンピックスについてその認知度を比較すると、表6のように相当の隔たりがある。

表6 日本におけるパラリンピック、デフリンピック、スペシャルオリンピックスの認知度

パラリンピック	デフリンピック	スペシャルオリンピックス
97.6%	10.1%	17.9%

日本財団パラリンピックサポートセンター、2017年、「2016リオパラリンピック後における国内外一般社会でのパラリンピックに関する認知と関心」調査を基に中山健二郎研究員作成。

現在、知的障がい者がパラリンピック大会において正式に参加できる競技は、東京パラ大会で予定されている22競技中3競技（陸上、水泳、卓球）に限定され、冬季は該当競技がない状況が続いている。他方、知的障がい者にも、「スペシャルオリンピックス」という独自の世界大会があり、参加国数、参加人数、競技数に限って言えば、表7の通りパラリンピック大会に比肩しうる。したがって、知的障がいと他の障がいの格差は、国際大会への参加人数、競技数にあるのではなく、むしろスポーツ大会参加の意義についての違い、いいかえれば、パラリンピックとスペシャルオリンピックスの理念の違いと言えよう。

表7 パラリンピック大会とスペシャルオリンピックス世界大会参加国数, 参加人数, 競技数

大会名	夏季大会		冬季大会	
	パラリンピック (2016年リオデ ジャネイロ)	スペシャルオリ ンピックス (2015年ロサン ゼルス)	パラリンピック (2014年ソチ)	スペシャルオリ ンピックス (2013年平昌)
参加国数	159+IPA	165	45	100
参加人数	4,328	約6,200	547	約2,300
競技数	22	25	5	8

Special Olympics International, "Sports and Games," <https://www.specialolympics.org/about/history>, (May 27, 2019); Special Olympics World Games History, [https://media.specialolympics.org/soi/files/resources/World\\_Games/2013-World-Winter-Games/Docs\\_PressReleaseFactSheet/SOWorldGamesHistory\\_UpdatedMarch2012.pdf](https://media.specialolympics.org/soi/files/resources/World_Games/2013-World-Winter-Games/Docs_PressReleaseFactSheet/SOWorldGamesHistory_UpdatedMarch2012.pdf), (May 27, 2019) および IPC データベース (2019年5月27日) を基に筆者作成。

#### 4. 障がい者団体と障がい者スポーツ競技団体との乖離

障がい者団体(福祉関連)と障がい者スポーツ競技団体との関係にも乖離が見られる。障がい者スポーツ競技団体の役員に、障がい者団体の代表者が含まれている事例もわずかながらあるが(たとえば日本盲人会連合会長は日本視覚障害者柔道連盟会長を、知的障がい者関連団体全国手をつなぐ育成会連合会の統括は全日本知的障がい者スポーツ協会で理事を務める(2019年5月現在)), 障がい者団体と障がい者スポーツ競技団体との連携が充分機能しているとは言い難い。そもそも、障がい者団体の活動の中に障がい者スポーツの振興を主な活動の柱として位置づけている団体(組織の中にスポーツ担当部署を正式に設置しているもの)は、2018年3月時点で全日本ろうあ連盟を除けばほとんどない。これらの実態は、障がい者団体と障がい者スポーツ競技団体との溝、あるいは乖離の存在を示している。

また、障がい者スポーツ競技団体の中でも、多くの場合、障がい者を役員に登用しておらず、職員として障がい者を雇用しているものも少ない。2018年10月に日本財団パラリンピックサポートセンターが調査をした23のパラリンピック競技団体のうち、役員(会長, 理事長, 理事)に障がい者がいる団体は、日本障害者スポーツ射撃連盟, 日本肢体不自由者卓球協会, 日本身体障がい者水泳連盟, 日本ボッチャ協会にとどまっており、また職員に障がい者を雇用している団体は、日本車いすテニス協会, 日本車いすバ

スケートボール連盟，日本パラバレーボール協会，日本肢体不自由者卓球協会，日本パラアイスホッケー協会，日本知的障害者水泳連盟，日本身体障害者アーチェリー連盟にとどまっているのが実態である。

## 5. 中央と地方との差

我が国の中央政府レベルでは，2014年に障がい者スポーツが厚生労働省から文部科学省に移管され，健常者，障がい者を問わず，スポーツ振興政策の立案，実行が一元化された。都道府県レベルでは，障がい者スポーツ行政が健常者と同じスポーツ担当部局に統合されているのは，2018年10月の時点で一都十県（岩手県，福島県，東京都，神奈川県，滋賀県，鳥取県，広島県，愛媛県，高知県，福岡県，佐賀県）である。そのうち，岩手県（2016年に国民体育大会（以下「国体」と略す）と全国障がい者スポーツ大会（以下「全スポ」と略す）を開催）と愛媛県（2017年に国体と全スポを開催）では，両大会を主催するにあたり国体と全スポの双方を一括して担当する部局が準備段階で設置され，国体・全スポ終了後は県の組織改正が行われ，岩手県には文化スポーツ部が，愛媛県にはスポーツ文化部が新設され，健常者スポーツと障がい者スポーツの担当部局が一本化された。これは，国体と全スポが同じ県で開催されてはじめて，障がい者スポーツ担当部局と健常者スポーツ担当部局が「一本化」された事例といえよう。

中央においては（オリンピック並びに）パラリンピック教育についての行政はスポーツ庁を配下に持つ文部科学省が担当しており，その意味で連携が容易であるが，県レベルにおいては，通常パラリンピック教育行政は各県の教育委員会の所轄であり，県自体の中にそのための責任部局がないため障がい者スポーツの社会一般への普及，振興とパラリンピック教育が，とかく連携，連動しないまま行われている傾向がある。

さらに，日本財団パラリンピックサポートセンターに入居している28の障がい者スポーツ競技団体中，地方（県レベルあるいは地域レベル）に支部を持っている団体は，競技団体ホームページ上で公表（2018年2月時点）されているデータによると，7競技団体程度にとどまっており，地方における競技の普及，PR活動の基盤が整っていないことが暗示されている。

## 6. 男女格差

パラリンピック大会における女子選手の活躍が取り上げられる機会が男子選手に比べ少ないことは，オリンピック大会との比較においても明らかであり，国際的にも注目さ

れている。その大きな理由のひとつは、参加選手数の違いである。表8のように、オリンピックに比べると、とりわけ冬季大会においてパラリンピック大会への女子選手の参加率が低い。また、選手だけではなく、組織における女性役員の比率と言う観点から男女格差をみると、IPC 理事では13名中4名（29%）<sup>9</sup>、アジアパラリンピック委員会理事では15名中3名（20%）<sup>10</sup>にとどまっている。

表8 オリンピック大会・パラリンピック大会に出場した女子選手の割合

女子選手数割合（夏季大会）			女子選手数割合（冬季大会）		
開催年	パラリンピック（%）	オリンピック（%）	開催年	パラリンピック（%）	オリンピック（%）
1960	21.5	11.4	1976	23.0	20.6
1964	26.7	13.2	1980	30.6	21.7
1968	25.4	14.2	1984	28.9	21.5
1972	29.1	14.6	1988	25.7	21.2
1976	21.3	20.7	1992	26.7	27.1
1980	25.6	21.5	1994	23.7	30.0
1984	25.5	23.0	1998	27.7	36.2
1988	22.1	26.1	2002	26.5	36.9
1992	23.3	28.8	2006	26.4	38.2
1996	24.3	34.0	2010	31.8	40.7
2000	25.5	38.2	2014	31.3	40.3
2004	30.6	40.7	2018	30.9	41.3
2008	34.5	42.4			
2012	35.4	44.2			
2016	38.6	45.0			

出典：IOC, 2016, Factsheet Women in the Olympic Movement; 2018, Factsheet the Olympic Winter Games, IPC データベース（2019年5月27日）を基に平賀慧研究員作成。

## 7. 国際的格差

パラリンピック大会においては、各国の福祉政策や用具の普及度などの違いから、オリンピック大会以上に、各国の経済、社会的事情が選手の成績に反映しやすいことは、容易に想像しうる。

こうした国別の格差は、まず、多くの国では、参加競技自体が限られているという実態に表れている。リオパラ大会は合計22競技で競われたが、参加競技が10を越えた国は、



参加159カ国のうち27カ国にとどまった。この27カ国を地域別に分けると、欧米地域16カ国、アジア太平洋地域5カ国、中近東アフリカ地域4カ国、南米2カ国であり、半分以上が欧米諸国で占められている。また、六つの団体競技（5人制サッカー、7人制サッカー、ゴールボール、シッティングバレーボール、車いすバスケットボール、車いすラグビー）のうち、4競技以上に出場できた国は5カ国であった<sup>11</sup>。

次にリオパラ大会におけるメダル獲得数をみると、上位10カ国は、中国とオーストラリアを除けば全て欧米諸国であり、また、上位3カ国のいわゆるメダル独占率は31.5%であった（メダル（金、銀、銅）獲得占有率の上位3カ国は中国、英国、ウクライナ）。また、平昌パラ大会では、この独占率は39.6%に上った（上位3カ国は米国、カナダ、ウクライナ）。なお、以下の表9～14のメダル獲得占有率、メダルポイント占有率は表章単位未満を四捨五入している。

表9 夏季パラリンピック大会のメダル獲得占有率

	上位3カ国	上位5カ国	上位10カ国
ロンドン（2012年）	29.8%	41.8%	60.2%
リオデジャネイロ（2016年）	31.5%	43.8%	60.6%

IPC データベース（2019年5月27日）を基により遠藤華英研究員作成。

表10 冬季パラリンピック大会のメダル獲得占有率

	上位3カ国	上位5カ国	上位10カ国
バンクーバー（2010年）	42.2%	58.9%	84.4%
ソチ**（2014年）	56.9%	71.3%	90.7%
平昌（2018年）	39.6%	57.6%	79.7%

\*\*なおソチパラ大会は、主催国ロシアのメダル獲得数が極めて多かったことを鑑み、バンクーバー2010パラリンピック冬季競技大会を比較のため掲載した。

IPC データベース（2019年5月27日）を基により遠藤華英研究員作成。

表11 ロンドン2012パラリンピック競技大会におけるメダル獲得占有率上位10カ国

	出場国	金	銀	銅	合計	メダル ポイント	地域	メダル獲 得占有 率***	メダルポ イント占 有率****
1	中国	95	71	65	231	492	アジア	15.2%	16.2%
2	英国	34	43	43	120	231	欧州	7.9%	7.6%
3	ロシア	36	38	28	102	212	欧州	6.7%	7.0%
4	米国	31	29	38	98	189	米国	6.4%	6.2%
5	オーストラリア	32	23	30	85	172	オセアニア	5.6%	5.7%
6	ウクライナ	32	24	28	84	172	欧州	5.5%	5.7%
7	ドイツ	18	26	22	66	128	欧州	4.3%	4.2%
8	フランス	8	19	18	45	80	欧州	3.0%	2.6%
9	ブラジル	21	14	8	43	99	米国	2.8%	3.3%
10	スペイン	8	18	16	42	76	欧州	2.8%	2.5%

\*\*\*メダル獲得占有率は、全メダル数に占める各参加国の獲得メダル総数の割合。

\*\*\*\*メダルポイント占有率は、便宜的に金メダル3ポイント、銀2ポイント、銅1ポイントとして集計した各参加国の合計メダルポイントがメダルポイント総数に占める割合。

IPC データベース（2019年5月27日）を基に遠藤華英研究員作成。

表12 リオパラ大会におけるメダル獲得占有率上位10カ国

	出場国	金	銀	銅	合計	メダル ポイント	地域	メダル獲 得占有 率***	メダルポ イント占 有率****
1	中国	107	81	51	239	534	アジア	15.0%	16.8%
2	英国	64	39	44	147	314	欧州	9.2%	9.9%
3	ウクライナ	41	37	39	117	236	欧州	7.3%	7.4%
4	米国	40	44	31	115	239	アメリカ	7.2%	7.5%
5	オーストラリア	22	30	29	81	155	オセアニア	5.1%	4.9%
6	ブラジル	14	29	29	72	129	アメリカ	4.5%	4.1%
7	オランダ	17	19	26	62	115	欧州	3.9%	3.6%
8	ドイツ	18	25	14	57	118	欧州	3.6%	3.7%
9	ポーランド	9	18	12	39	75	欧州	2.4%	2.4%
10	イタリア	10	14	15	39	73	欧州	2.4%	2.3%

IPC データベース（2019年5月27日）を基に遠藤華英研究員作成。

表13 ソチ2014パラリンピック冬季競技大会におけるメダル獲得占有率上位10カ国

	出場国	金	銀	銅	合計	メダルポイント	地域	メダル獲得占有率***	メダルポイント占有率****
1	ロシア	30	28	22	80	168	欧州	37.0%	38.9%
2	ウクライナ	5	9	11	25	44	欧州	11.6%	10.2%
3	米国	2	7	9	18	29	アメリカ	8.3%	6.7%
4	カナダ	7	2	7	16	32	アメリカ	7.4%	7.4%
5	ドイツ	9	5	1	15	38	欧州	6.9%	8.8%
6	フランス	5	3	4	12	25	欧州	5.6%	5.8%
7	オーストリア	2	5	4	11	20	欧州	5.1%	4.6%
8	スロバキア	3	2	2	7	15	欧州	3.2%	3.5%
9	日本	3	1	2	6	13	アジア	2.8%	3.0%
10	英国	1	3	2	6	11	欧州	2.8%	2.5%

IPC データベース（2019年5月27日）を基に遠藤華英研究員作成。

表14 平昌パラ大会におけるメダル獲得占有率上位10カ国

	出場国	金	銀	銅	合計	メダルポイント	地域	メダル獲得占有率***	メダルポイント占有率****
1	米国	13	15	8	36	77	アメリカ	16.6%	17.9%
2	カナダ	8	4	16	28	48	アメリカ	12.9%	11.1%
3	ウクライナ	7	7	8	22	43	欧州	10.1%	10.0%
4	フランス	7	8	5	20	42	欧州	9.2%	9.7%
5	ドイツ	7	8	4	19	41	欧州	8.8%	9.5%
6	ベラルーシ	4	4	4	12	24	欧州	5.5%	5.6%
7	スロバキア	6	4	1	11	27	欧州	5.1%	6.3%
8	日本	3	4	3	10	20	アジア	4.6%	4.6%
9	ノルウェー	1	3	4	8	13	欧州	3.7%	3.0%
10	オランダ	3	3	1	7	16	欧州	3.2%	3.7%

IPC データベース（2019年5月27日）を基に遠藤華英研究員作成。

また、開催地について見ると、夏季大会については、1960年以来2016年まで15回の大会のうち欧米以外で開催された大会は、1964年の東京、1968年のテルアビブ、1988年のソウル、2000年のシドニー、2008年の北京、2016年のリオデジャネイロの6回にとどまっております。冬季大会は1976年以来12回のうち1998年の長野、2018年の平昌の2回のみが欧米以外で開かれた大会であった。

パラリンピック大会の歴史を振り返り、メダルを獲得した国と獲得していない国の比率を経年的に観察すると、夏季大会については、図4の通り1988年のソウル大会以降、参加国の増加とメダルを獲得していない国の増加は、ほぼ平行線をたどっており、格差の解消は必ずしも進んでいないことが見て取れる。こうした傾向は、冬季大会についても長野大会以降ほぼ同じように観察される。

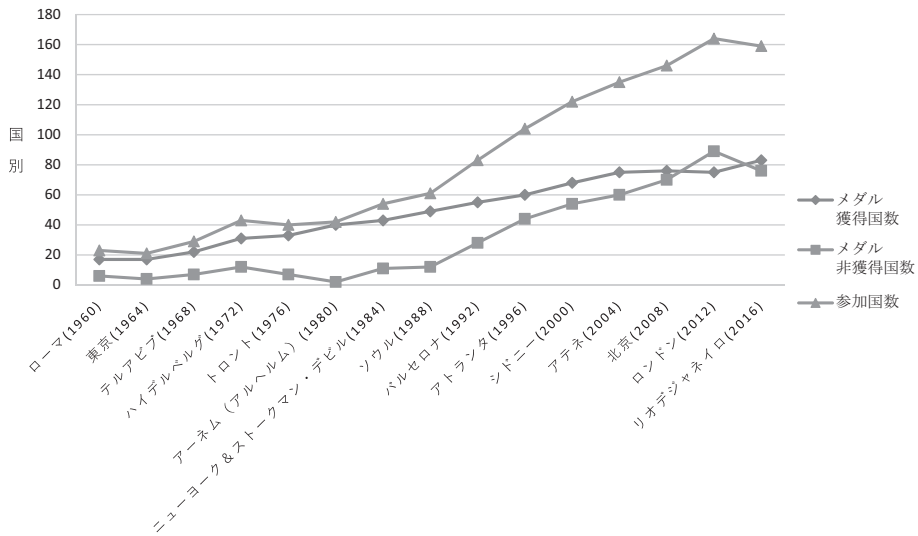


図4 メダル獲得国数とメダル非獲得国数の変化（夏季大会）

IPC データベース（2019年5月27日）を基に遠藤華英研究員作成。

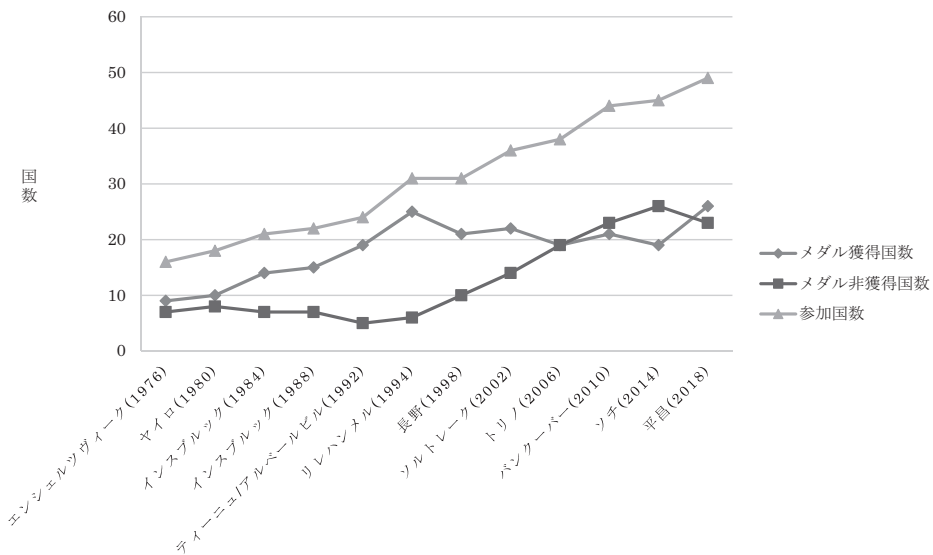


図5 メダル獲得国数とメダル非獲得国数の変化（冬季大会）

IPC データベース（2019年5月27日）を基に遠藤華英研究員作成。

## 将来にむけて

パラリンピックについての社会的認知度が高まり、競技への関心が深まるにつれて、パラリンピックが抱える問題や課題がより表面化あるいは顕在化してきている。とりわけ、パラリンピックは、障がい者の社会参加に関連して、障がい当事者あるいは健常者の認識や行動に波及効果を与えることが期待されているだけに、そうしたパラリンピックの意義が、パラリンピックの発展につれてどのように進化あるいは変化していくかはパラリンピック研究の今後の中心テーマの一つになるべきものと考えられる。その意味で、本論文が、パラリンピックの今後の成功のために重ねられる議論に対しささやかな一石を投ずる一助となれば幸いである。

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# The Paradox Concerning Disability Sports: Exploring Challenges Facing the Paralympics

Kazuo Ogoura

## Introduction: Identification of the Issue

In recent years, public interest in the Paralympics and disability sports has been rising, and there are noticeably more opportunities for people to watch or participate in disability sports. These trends have a social significance, two of which are often cited. The first is that they can give courage to people with disabilities and act as an agent for motivating them to build their ability and for promoting their social participation. The second is that they can act as a catalyst for change in how people with disabilities are viewed in society and for creating a better physical and psychological environment for people with disabilities. To effectively bring about such outcomes and ripple effects, however, it is necessary that the Paralympics and disability sports are felt to be something more “familiar” not only among disability sports athletes and other parties involved in sports, but also among people with disabilities in general and among able-bodied people. This will require spreading disability sports competitions, increasing name recognition of athletes, and disseminating knowledge, but this process entails a number of latent and already emerging problems. The crux of the problem is that specific objectives and effects result not only in positive outcomes, but also in outcomes that contradict with the intended objectives and end results. This has been described by several researchers as the “Paralympic paradox”.<sup>1</sup>

For example, a disabled athlete may attain success and increase their name recognition. This may result in increasing the interest of society at large in the Paralympics, disability sports events, and related activities and competitions. This process, however, implies the shift of a disabled athlete from the category of “a disabled person” to one of “an athlete” for whom “having a disability or not is

irrelevant". As a result, the athlete may be respected but oftentimes considered by many disabled people as unreachable for the very reason of his or her success. Therefore, it is not always clear whether the success of an athlete actually results in encouraging other people with disabilities to participate in sports and in expanding the base of participants in disability sports. To put it another way, the moment a disabled athlete "overcomes disability", the association the athlete has with "disability" becomes weaker. Furthermore, considered in relation to society at large, it also raises the question of whether it was from the perspective of able-bodied people that gave rise to the idea that disability sports help to give courage to people with disabilities and motivate them to become more independent and to develop their ability. In this regard, it poses the more essential questions of "Who is the Paralympics truly for?" and "What is the significance of disability sports?"

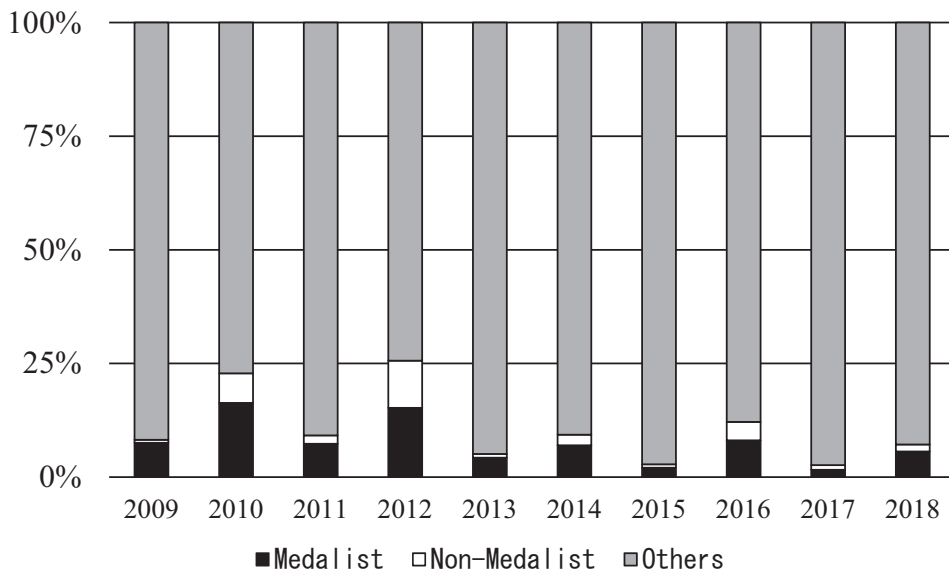
With the above approach, this article will analyze and discuss the current status of, and problems related to the paradox as well as gaps and disparities found in the Paralympics and disability sports from the perspective of: disparity between medalists and non-medalists; divergence between "athletes" and people with disabilities in general; disparity among different types of disabilities; the relationship between disability organizations and disability sports organizations; disparity between national and local governments; disparity between men and women; and disparity among countries. Furthermore, in some respects, disparity between disability sports and sports for able-bodied people, or between the Paralympic Games and Olympic Games, has an effect on the paradox in disability sports. This aspect, however, will not be included in this article.

## 1. Disparity between Medalists and Non-Medalists

As the Paralympic Games become better known and more people take interest in the Paralympic Games as sports or competition, it is natural for media coverage of Paralympians and particularly medalists to expand, and with it, medalists will have a greater number of fans. This tendency further heightens the public's interest in the Paralympic Games. However, if the disparity grows disproportionately between the medalists and non-medalists in the amount of public attention and in public estimation, then there is the risk that winning medals will become the purpose of

athletes participating in the Paralympic Games, that emphasis will be placed on developing athletes' competitive performance, and that the social significance of the Paralympics will be given little attention.

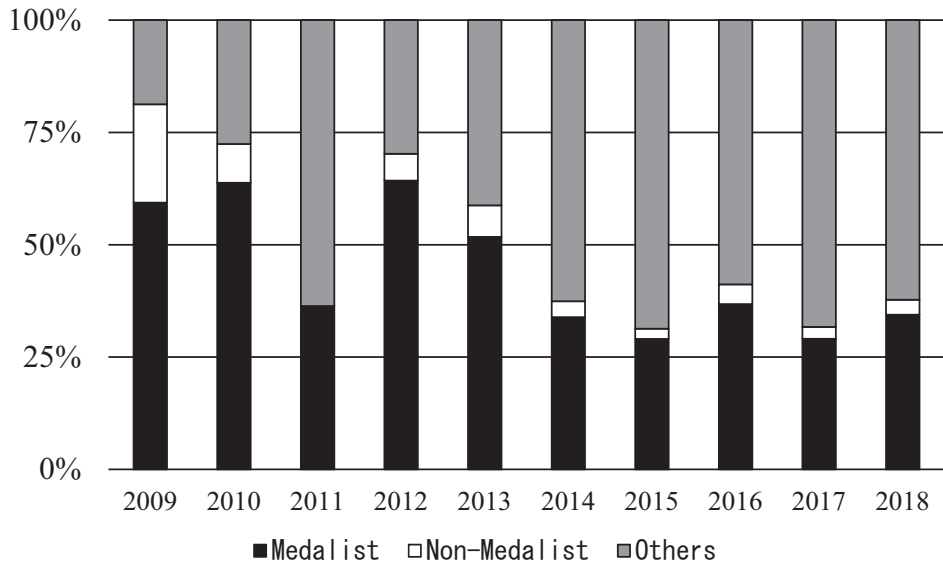
From this perspective, newspaper articles (the Asahi Shimbun (Figure 1), the Nikkei (Figure 2), and the Yomiuri Shimbun (Figure 3)) were used as a measure of public attention, and a comparison was made of the number of articles on medalists and non-medalists at each of the Paralympic Games. For this study, the keyword "Paralympic" was used to extract articles between 2009 and 2018 on each newspaper's database, a determination was made on whether the articles mentioned names of athletes, and if they did, the contents of each article were checked to select corresponding articles. As a result, it was confirmed that there was a wide gap between the number of articles on medalists and on non-medalists and that the media were making medalists into "stars", so to speak, creating a disparity between medalists and non-medalists.



**Figure 1. The Ratio of Articles about Medalists and Non-Medalists on the Asahi Shimbun Database**

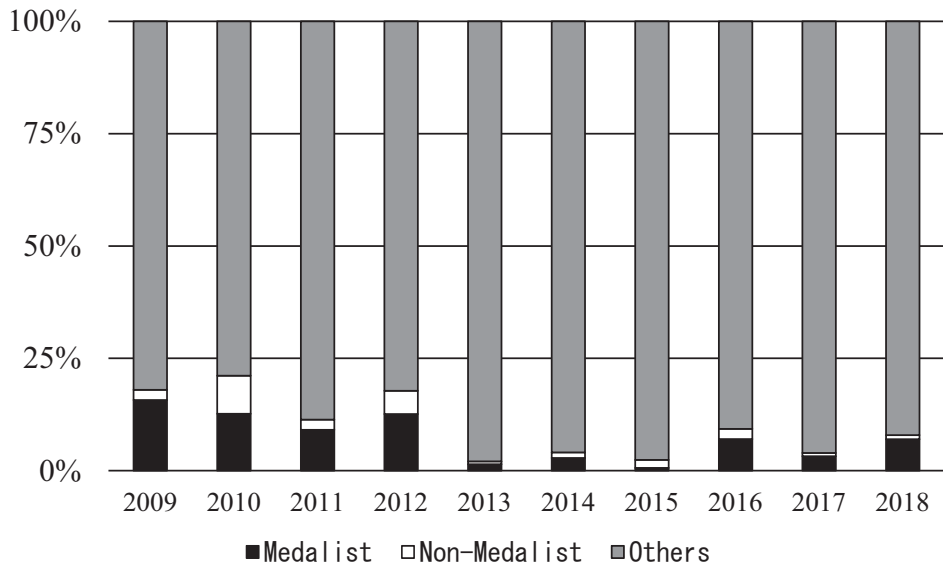
Compiled by Researcher Akira Nagamatsu based on the Asahi Shimbun Company database "Kikuzo II Visual" (morning and evening editions of the Asahi Shimbun)





**Figure 2. The Ratio of Articles about Medalists and Non-Medalists on the Nikkei Database**

Compiled by Researcher Akira Nagamatsu based on the Nikkei, Inc. database “Nikkei Telecom 21” (morning and evening editions of the Nikkei)



**Figure 3. The Ratio of Articles about Medalists and Non-Medalists on the Yomiuri Shimbun Database**

Compiled by Researcher Akira Nagamatsu based on the Yomiuri Shimbun database “Yomidasu Rekishikan”

**Table 1. Medals Won by All Japanese Athletes Participating in the PyeongChang Paralympic Games and Total Number of Newspaper Articles\***

Athlete	Medal	Total Number of Medals (including Paralympic Games other than PyeongChang)	Total Number of Newspaper Articles
NITTA Yoshihiro	○	5	373
YAMAMOTO Atsushi	○	3	268
MORII Taiki	○	5	262
KANO Akira	○	4	248
MURAOKA Momoka	○	5	237
SUZUKI Takeshi	○	3	193
NARITA Gurimu	○	2	148
MISAWA Hiraku		0	136
DEKIJIMA Momoko		0	124
SATO Keiichi		0	104
ABE Yurika		0	96
KOIKE Gakuta		0	77
SUDO Satoru		1	73
NATSUME Kenji		0	69
UEHARA Daisuke		1	64
NITTA Nonno		0	57
OGURI Daichi		0	50
HONDO Ammi		0	45
TAKAMURA Kazuto		0	44
HOSHIZAWA Masaru		0	43
KAWAYOKE Taiki		0	41
FUKUSHIMA Shinobu		1	38
IWAMOTO Keigo		0	36
TAKAHASHI Kazuhiro		1	35
MISAWA Eiji		1	32
YOSHIKAWA Mamoru		1	30
KUMAGAI Masaharu		0	29
TAKAHASHI Kohei		0	25
ANNAKA Mikio		1	18
SHIBA Taimei		0	15
KODAMA Nao		0	14
NAKAMURA Toshiyuki		1	11
HORIE Wataru		0	11
MOCHIZUKI Kazuya		0	11
NAGUMO Keisuke		0	10
SHIOYA Yoshihiro		0	9
HIROSE Susumu		0	9
ISHII Hideaki		0	6

\*The databases “Yomidasu Rekishikan”, “Kikuzo II Visual”, and “Nikkei Telecom 21” were used to obtain the total number of articles. The search covered the longest period available on each database, except for the Yomiuri Shimbun database, which restricted the search to the Heisei Period (1989-2019). The name of each athlete and the word “Para” were used as search keywords to exclude articles on same-name persons who are not the athletes.

Compiled by Researcher Akira Nagamatsu based on “Yomidasu Rekishikan”, “Kikuzo II Visual,” and “Nikkei Telecom 21”

**Table 2. The Amount of Reward Money Awarded  
by the Japanese Paralympic Committee**

Year	Paralympic Games	Reward Money in Yen		
2008	Beijing (Summer)	Gold:1 Million	Silver:0.7 Million	Bronze:0.5 Million
2010	Vancouver (Winter)	Gold:1 Million	Silver:0.7 Million	Bronze:0.5 Million
2012	London (Summer)	Gold:1 Million	Silver:0.7 Million	Bronze:0.5 Million
2014	Sochi (Winter)	Gold:1.5 Million	Silver:1 Million	Bronze:0.7 Million
2016	Rio de Janeiro (Summer)	Gold:1.5 Million	Silver:1 Million	Bronze:0.7 Million
2018	PyeongChang (Winter)	Gold:3 Million	Silver:2 Million	Bronze:1 Million

Compiled by Researcher Akira Nagamatsu based on the Yomiuri Shimbun (evening edition, September 4, 2008), the Asahi Shimbun (morning edition, May 21, 2014), and the Nikkei (morning edition, March 27, 2018)

The Figure 1.-3. are a comparison of the number of articles on all athletes. A comparative analysis was also made of the number of articles on medalists and non-medalists among Japanese athletes who participated in the PyeongChang 2018 Paralympic Winter Games (hereafter shortened to “PyeongChang Paralympic Games”). The results, shown in Table 1, confirm the wide disparity between medalists and non-medalists.

There is the risk that these trends may widen the disparity between medalists and non-medalists not only in terms of the athletes’ name recognition, but also in terms of securing sponsors, practice environments and income. In particular, the reward money for winning a medal, the amount of which has been rising in recent years as shown in Table 2, symbolizes the growing disparity in how the athletes are treated.

One of the causes of the wider disparity between medalists and non-medalists is the significant expectations and interest that people have about athletes winning medals. It is also possible that setting a goal on the number of gold medals may be playing a part in widening the disparity. For example, the Japanese Paralympic Committee (JPC) had originally set a goal of winning 22 gold medals<sup>2</sup> and ranking 7th in the gold medal ranking (although more recently, the JPC has released only the goal related to ranking)<sup>3</sup> at the Tokyo 2020 Paralympic Games (hereafter the “Tokyo Paralympic Games”). For the PyeongChang Paralympic Games, Canada set the goal of more than 16 gold medals to improve the number they won at the previous winter Paralympic Games in Sochi.<sup>4</sup> The UK set the goal of winning at least 121 medals at

the Rio 2016 Paralympic Games (hereafter the “Rio Paralympic Games”).<sup>5</sup> On the other hand, although it is said unofficially that the U.S. has a goal, it has not been disclosed. Australia deliberately withheld from setting a goal at the Sydney 2000 Paralympic Games to “minimize pressure on athletes”.<sup>6</sup> Given the situation in each country, we will need to consider a number of factors, including whether the goal is officially disclosed or not, and whether the goal is for gold medals or a total number of medals, when examining to what degree setting such goals on the number of medals widens disparity between medalists and non-medalists in terms of public attention and in other aspects.

There is on the other hand a view that is worth noting: even though media coverage on medalists at the Paralympic Games may have temporarily intensified, the recognition that Paralympic athletes have in society, unlike Olympic athletes, is still limited and that at this stage, it would be more important to increase and deepen media coverage of Paralympic athletes regardless of whether they have won a medal or not, than to make an issue of disparity between medalists and non-medalists. In fact, Momoka Muraoka was featured in many articles after winning five medals at the PyeongChang Paralympic Games, but when she won the Women’s Super-Combined Sitting event at the World Para Alpine Skiing World Cup on January 31, 2019, after the PyeongChang Paralympic Games, newspaper coverage among the three newspapers (the Asahi Shimbun, the Nikkei, and the Yomiuri Shimbun) was limited to a few lines each in the morning edition of the Asahi Shimbun and the Yomiuri Shimbun.<sup>7</sup> This suggests that Paralympic medalists have not necessarily achieved a “star” status.

## 2. Divergence between “Athletes” and People with Disabilities in General

If we define “athletes” as those who take part in the Paralympic Games and those who enter domestic or international events in the hope of competing in the Paralympic Games, the more a disabled person becomes an “elite athlete” who wins medals and performs at the highest levels of competition, the more we hear them say that they want to be seen not as “a person with a disability” but as “an athlete” for whom “having a disability or not is irrelevant”. This tendency is the very symbol of the divide, or potential divide, between such athletes and people with disabilities in

general. In other words, the more a Paralympic athlete and others involved try to increase the athlete's competitive ability, win medals and seek to be recognized not as "a person with a disability" but as "an athlete", the more the athlete becomes a person who exists in a different dimension for people with disabilities in general. This creates a paradox with the original aim of the Paralympics, which is to give courage to people with disabilities in general through sports and to promote their participation in society. This tendency is also substantiated by the findings of the Study of the Paralympics and Broadcasting conducted jointly by the Nippon Foundation Paralympic Support Center and NHK Broadcasting Culture Research Institute.

As shown in Table 3, the percentage of people with disabilities (18 and over) who showed interest in the Paralympic Games (those responding either "very much interested" or "interested" to the question "Are you interested in the Paralympic Games?") was only 36.2% on average. The level of interest in the Paralympic Games is higher than that of able-bodied people (28.3% on average), but is substantially lower than the level of interest the same respondents with disabilities had in the Olympic Games (57.9% on average). It can be said here again that we can glimpse the divide between the "athletes" and people with disabilities in general.

This divide between the "athletes" and people with disabilities in general, at the level of each person's consciousness, can be understood as an essential divide between identification of the self as "athletes" and identification of the self as a "disabled person". In other words, for people with disabilities in general, "being disabled" makes up a large part of their identity, whereas for many disability sports athletes, "being an athlete" makes up a large part of their identity. The more the Paralympics are reported in the sports section of newspapers, rather than in articles that highlight success stories of people with disabilities in the general news page, the more the divide between the "athletes" and people with disabilities in general will widen.

It can also be said that the more exceptional the performance of disability sports athletes, the more it will induce in people with disabilities the feeling that they could never do the same as those athletes if they were expected to do so. This also widens the divide between the two. On this point, Overboe (2009) has written as follows:<sup>8</sup>

Paradoxically, the image of the disabled hero validates the lived experience of a few disabled people and invalidates the lived experience of the majority of

Table 3. Interest in the PyeongChang Olympic Games and the PyeongChang Paralympic Games

		Interest in the Olympics Base=All the People in the Survey						Interest in the Paralympics Base=All the People in the Survey									
		%						%									
	Age	Number of Samples	Very Much Interested	Interested	Not Sure	Not Much Interested	Not at All Interested	Subtotal of "Interested"	Subtotal of "Not Sure" + "Not Interested"	Very Much Interested	Interested	Not Sure	Not Much Interested	Not at All Interested	Subtotal of "Interested"	Subtotal of "Not Sure" + "Not Interested"	
People with impairments	Answered in Person	SUBTOTAL	1275	26.3	31.5	15.1	8.9	18.1	57.9	42.1	11.0	25.2	25.0	16.8	21.9	36.2	63.8
		SUBTOTAL of the Following 4 Impairments	1000	29.9	37.8	14.3	8.5	9.5	67.7	32.3	11.6	32.9	22.4	19.9	13.3	44.5	55.5
		Visual Impairment	250	29.7	38.1	9.6	11.2	11.4	67.8	32.2	15.3	31.3	19.3	18.4	15.7	46.6	53.4
		Hearing Impairment	150	32.3	42.8	12.9	5.0	7.0	75.1	24.9	19.6	44.2	17.7	9.4	9.1	63.8	36.2
	18 or Above	Physical Impairment	500	25.8	36.0	15.3	11.8	11.2	61.7	38.3	11.0	31.5	23.3	18.5	15.7	42.5	57.5
		Internal Impairment	100	36.8	39.4	14.3	2.9	6.6	76.3	23.7	9.4	32.7	22.9	25.7	9.3	42.1	57.9
		Intellectual Impairment	75	30.7	21.3	21.3	4.0	22.7	52.0	48.0	18.7	25.3	25.3	6.7	24.0	44.0	56.0
		Mental Disorder	100	25.0	29.0	18.0	10.0	18.0	54.0	46.0	7.0	21.0	28.0	21.0	23.0	28.0	72.0
		Developmental Disorder	100	23.0	29.0	12.0	9.0	27.0	52.0	48.0	13.0	21.0	25.0	11.0	30.0	34.0	66.0
		SUBTOTAL	400	8.4	25.4	16.9	15.4	33.9	33.8	66.2	4.1	14.0	20.5	21.6	39.9	18.0	82.0
Answered by Proxy	Under 18	Physical Impairment	55	3.6	32.7	14.5	18.2	30.9	36.4	63.6	3.6	20.0	12.7	25.5	38.2	23.6	76.4
		Mental Disorder	262	8.4	24.0	16.8	18.7	32.1	32.4	67.6	3.1	14.1	19.8	23.3	39.7	17.2	82.8
	Intellectual Impairment	83	10.8	24.1	18.1	8.4	38.6	34.9	65.1	6.0	10.8	25.3	16.9	41.0	16.9	83.1	
	Intellectual Impairment	100	11.0	23.0	17.0	10.0	39.0	34.0	66.0	6.0	15.0	22.0	18.0	39.0	21.0	79.0	
Non-Disabled People		500	21.6	35.3	12.3	11.1	19.7	56.9	43.1	6.2	22.1	26.2	19.0	26.4	28.3	71.7	

Source: The Nippon Foundation Paralympic Support Center and NHK Broadcasting Culture Research Institute, 2018, "Study of the Paralympics and Broadcasting."

disabled people because they cannot meet such expectation.

It is also possible to find a social meaning behind this feeling of discomfort or disparity at the personal level on the part of people with disabilities in general. This is because praising athletes for their high performance levels may inadvertently embed in society the idea that “overcoming disabilities” is dependent on individual efforts and will, and it may be that the unconscious rejection of this very idea on the part of people with disabilities is settling into the form of “discomfort”.

### 3. Disparity among Types of Disability

The public’s knowledge of, and interest in, disability sports varies depending on the type of competition or event. In addition, there is a disparity in involvement in the Paralympic Games depending on the type of disability.

As a matter of convenience, we categorize disabilities into physical disability, visual impairment, hearing impairment, and intellectual disability. Those with a hearing impairment do not participate in the Paralympics but have their own international event, the Deaflympics. A comparison between the Deaflympics and Paralympics in terms of the number of participating countries and athletes and the number of events is shown in Table 4. There is a considerable difference in size.

**Table 4. Number of Participating Countries, Athletes, and Events at the Paralympics and Deaflympics**

Games	Summer Games		Winter Games	
	The Rio 2016 Paralympic Games	2017 Samsun XXIII. Summer Deaflympics	The Sochi 2014 Paralympic Games	18 <sup>th</sup> 2015 Winter Deaflympics Khanty-Mansiysk
Countries	159 + IPA	86	45	27
Athletes	4,328	2,873	541	336
Sports	22	19	5	5

Compiled by the author based on the International Committee of Sports for the Deaf’s official website of the Deaflympics (“Games,” <https://www.deaflympics.com/>, (May 27, 2019)); 23rd Summer Deaflympics official website (“Sports,” [www.deaflympics2017.org](http://www.deaflympics2017.org), (May 27, 2019)) and IPC database (“Paralympic Games,” <https://www.paralympic.org/paralympic-games>, (May 27, 2019)).

In terms of newspaper coverage, a comparison for instance of the number of articles on the Rio Paralympic Games and those on the Deaflympics in Samsun, Turkey, in 2017, points to a significant disparity as shown in Table 5. In particular, few photographs were used in newspaper articles covering the Deaflympics, and there was no television broadcasting of the Deaflympics.

**Table 5. Comparison of the Number of Articles on the Paralympics and Deaflympics in Three Newspapers**

Games	The Asahi Shimbun	The Yomiuri Shimbun	The Mainichi	Total
The Rio 2016 Paralympic Games	301	373	335	1,009
2017 Samsun XXIII. Summer Deaflympics	21	23	9	53

The search words used were “Paralympics” for the Rio Games and “Deaflympics” for the Samsun Games. The search period was from the opening ceremony until the closing ceremony (Rio Games - September 7 to 18, 2016; Samsun Games - July 18 to 30, 2017). Each of the newspapers includes the morning, evening, and local editions.

Compiled by Researcher Masahiro Nakamura based on “Kikuzo II Visual,” “Yomidasu Rekishikan,” and the Mainichi Newspapers’ database “Maisaku”

These differences in media coverage are also reflected in the public’s knowledge of the Paralympics, Deaflympics, and Special Olympics. A comparison of the public’s knowledge of each event, shown in Table 6, indicates that there is considerable disparity among the three.

**Table 6. Degree of the Public’s Knowledge of the Paralympics, Deaflympics, and Special Olympics**

The Paralympics	The Deaflympics	The Special Olympics
97.6%	10.1%	17.9%

Compiled by Researcher Kenjiro Nakayama based on the Nippon Foundation Paralympic Support Center 2017 survey on “The General Public’s Awareness and Interest in the Paralympics in Japan and in Some Selected Countries after the Rio 2016 Games”

At present, the events that people with intellectual disabilities can officially participate in at the Paralympic Games are limited to three (athletics, swimming, and table tennis) out of the 22 planned to be held at the Tokyo Paralympic Games. For the winter Paralympic Games, there continues to be no events in which intellectually



disabled people can participate. However, people with intellectual disabilities also have their own international games called the “Special Olympics”. A comparison of the number of participating countries and athletes, and the number of events, in Table 7, shows that the Special Olympics are in par with the Paralympics. Therefore, the disparity between intellectual disability and other types of disability is not in the number of participating athletes and events at international games, but a difference in the significance of participating in each of the sporting events, or in other words, the difference in the underlying principles of the Paralympics and the Special Olympics.

**Table 7. Number of Participating Countries, Athletes, and Events at the Paralympics and Special Olympics World Games**

Games	Summer Games		Winter Games	
	The Rio 2016 Paralympic Games	The 2015 Special Olympics World Summer Games, Los Angeles	The Sochi 2014 Paralympic Games	The 2013 Special Olympics World Winter Games, PyeongChang
Countries	159 + IPA	165	45	100
Athletes	4,328	approx. 6,200	547	approx. 2,300
Sports	22	25	5	8

Compiled by the author based on Special Olympics International, “Sports and Games,” <https://www.specialolympics.org/about/history>, (May 27, 2019); [Special Olympics World Games History](https://media.specialolympics.org/soi/files/resources/World_Games/2013-World-Winter-Games/Docs_PressReleaseFactSheet/SOWorldGamesHistory_UpdatedMarch2012.pdf),

[https://media.specialolympics.org/soi/files/resources/World\\_Games/2013-World-Winter-Games/Docs\\_PressReleaseFactSheet/SOWorldGamesHistory\\_UpdatedMarch2012.pdf](https://media.specialolympics.org/soi/files/resources/World_Games/2013-World-Winter-Games/Docs_PressReleaseFactSheet/SOWorldGamesHistory_UpdatedMarch2012.pdf), (May 27, 2019) and IPC database (May 27, 2019)

#### 4. Gap between Disability Organizations and Disability Sports Organizations

There is also a gap in the relationship between welfare-related disability organizations and disability sports organizations. Even though there are a few cases of representatives from disability organizations sitting as board members of disability sports organizations (the president of the Japan Federation of the Blind, for example, serves as president of the Japan Blind Judo Federation, and the general manager of

the union of national parents' associations for persons with intellectual disabilities (Inclusion Japan) serves as a director of the All Nippon ID Sport Association (as of May 2019)), it can hardly be said that there is a sufficient level of collaboration between disability organizations and disability sports organizations. To begin with, there are hardly any disability organizations that have identified promotion of disability sports as one of the main pillars of their activities (by officially setting up a department in charge of sports within their organizations), with the exception of the Japanese Federation of the Deaf, as of March 2018. This state of affairs shows that there is a gap or divergence between welfare-related disability organizations and disability sports organizations.

In many instances, only a few disability sports organizations have people with disabilities on the board and among their employees. Of the 23 Paralympic sports organizations surveyed by the Nippon Foundation Paralympic Support Center in October 2018, the organizations that had people with disabilities on the board (in positions of chairperson, president, or board member) were limited to the Japan Para Shooting Sport Federation, Japan Para Table Tennis Association, Japanese Para-Swimming Federation, and Japan Boccia Association. The organizations that have people with disabilities among their employees were limited to the Japan Wheelchair Tennis Association, Japan Wheelchair Basketball Federation, Japan Para-Volleyball Association, Japan Para Table Tennis Association, Japan Para Ice Hockey Association, Japan Swimming Federation for Persons with an Intellectual Disability, and Japan Para Archery Federation.

## 5. Disparity between the National and Local Governments

At the level of the national government, administration of disability sports was transferred from the Ministry of Health, Labour and Welfare to the Ministry of Education, Culture, Sports, Science and Technology in 2014, integrating the planning and implementation of sports promotion policies for both able-bodied sports and disability sports. At the level of prefectural governments, administration of disability sports has been integrated into departments that have responsibility over sports for the able-bodied in the Tokyo Metropolitan Government and 10 prefectures (Iwate, Fukushima, Kanagawa, Shiga, Tottori, Hiroshima, Ehime, Kochi, Fukuoka, and Saga

Prefectures), as of October 2018. Among the prefectures, Iwate and Ehime, which hosted the National Sports Festival of Japan (hereafter the “NSF”) and the National Sports Festival for People with Disabilities (hereafter the “NSFPD”) in 2016 and 2017, respectively, each set up a department overseeing both the NSF and the NSFPD in the preparatory phase of the events. After the events, both prefectures carried out restructuring to integrate the offices responsible for sports for the able-bodied and the disabled, establishing the Department of Culture and Sports in Iwate Prefectural Government and the Sports and Culture Promotion Department in Ehime Prefectural Government. This is a case where the departments responsible for sports for the disabled and the able-bodied were integrated because the NSF and NSFPD were held in the same prefecture.

At the level of the national government, the Ministry of Education, Culture, Sports, Science and Technology, which has the Japan Sports Agency as its subordinate organization, administers education in schools on the Olympics and the Paralympics, which makes coordination easy. At the level of prefectures, however, the Board of Education in each prefecture generally has responsibility over Paralympics education. As there is no department responsible for Paralympics education within the prefectural government itself, there tends to be little coordination between promotion of disability sports in society at large and Paralympics education in schools.

Among the 28 disability sports organizations that have their offices in the Nippon Foundation Paralympic Support Center, moreover, only seven have local branches (either at the prefectural or other regional levels), according to data published on their websites (as of February 2018), suggesting that the foundation for promoting and conducting PR activities for disability sports competitions has not been sufficiently established at the local level.

## 6. Disparity between Men and Women

It is evident, also from comparison with the Olympic Games, that women athletes competing in the Paralympic Games are less frequently discussed than their male counterparts, and this has also drawn international attention. One of the main reasons for this is the difference in the number of men and women athletes participating in the Paralympic Games. As shown in Table 8, women athletes’ participation rate in the

Paralympic Games, and particularly in the winter Paralympic Games, is lower compared with that in the Olympic Games. Disparity between men and women is not only limited to athletes. From the perspective of the ratio of women board members, only four out of 13 members (29%) on the IPC Governing Board are women,<sup>9</sup> and only three out of 15 members (20%) of the Executive Board of the Asian Paralympic Committee are women.<sup>10</sup>

**Table 8. Women Athletes Participating in the Olympic and Paralympic Games (%)**

% of Female Athletes (Summer Games)			% of Female Athletes (Winter Games)		
Year	The Paralympics (%)	The Olympics (%)	Year	The Paralympics (%)	The Olympics (%)
1960	21.5	11.4	1976	23.0	20.6
1964	26.7	13.2	1980	30.6	21.7
1968	25.4	14.2	1984	28.9	21.5
1972	29.1	14.6	1988	25.7	21.2
1976	21.3	20.7	1992	26.7	27.1
1980	25.6	21.5	1994	23.7	30.0
1984	25.5	23.0	1998	27.7	36.2
1988	22.1	26.1	2002	26.5	36.9
1992	23.3	28.8	2006	26.4	38.2
1996	24.3	34.0	2010	31.8	40.7
2000	25.5	38.2	2014	31.3	40.3
2004	30.6	40.7	2018	30.9	41.3
2008	34.5	42.4			
2012	35.4	44.2			
2016	38.6	45.0			

Compiled by Researcher Kei Hiraga based on IOC, 2016, Factsheet Women in the Olympic Movement; 2018, Factsheet the Olympic Winter Games and IPC database (May 27, 2019)

## 7. Disparity among Countries

It is easily conceivable that each country's economic and social conditions are more readily reflected in the performance of athletes at the Paralympic Games than at the Olympic Games, because of differences in the degree to which social welfare policies

and assistive technology are implemented and used in each country.

This disparity among countries is evident, first of all, in that many countries are restricted in the events they have the capacity to take part in. The Rio Paralympic Games had a total of 22 events, but the number of countries that could partake in more than ten of those events was limited to 27 out of the 159 countries participating in the Games. The breakdown of these 27 countries by region shows that of the 27 countries, 16 were composed of European countries and North American countries, five were from the Asia and Pacific region, four from the Middle East and Africa, and two from South America, with European countries and North American countries making up the majority. Among the six team sports events (football 5-a-side, football 7-a-side, goalball, sitting volleyball, wheelchair basketball, and wheelchair rugby), only 5 countries could participate in four or more events.<sup>11</sup>

Secondly, in terms of the number of medals won at the Rio Paralympic Games, the top ten countries were, with the exception of China and Australia, all European countries plus the U.S. The percentage of medals won by the top three countries was 31.5% (the top three countries of medal share (gold, silver, and bronze) were China, the UK, and Ukraine). At the PyeongChang Paralympic Games, the percentage of medals won by the top three countries (the U.S., Canada, and Ukraine) was 39.6%. For the share of medals and share of medal points in Tables 9 to 14 below, any number less than one unit for each case, has been rounded to the nearest unit.

**Table 9. Share of Medals Won at Summer Paralympic Games**

Games	Top 3 Countries	Top 5 Countries	Top 10 Countries
The London 2012 Paralympic Games	29.8%	41.8%	60.2%
The Rio 2016 Paralympic Games	31.5%	43.8%	60.6%

Compiled by Researcher Hanae Endo based on IPC database (May 27, 2019)

**Table 10. Share of Medals Won at Winter Paralympic Games**

	Top 3 Countries	Top 5 Countries	Top 10 Countries
Vancouver 2010 Paralympic Winter Games	42.2%	58.9%	84.4%
Sochi 2014 Paralympic Winter Games **	56.9%	71.3%	90.7%
PyeongChang 2018 Paralympic Winter Games	39.6%	57.6%	79.7%

\*\*Considering that the host country Russia won an exceptional number of medals at the Sochi Paralympic Games, the data on the Vancouver 2010 Paralympic Winter Games are also listed for comparison.

Compiled by Researcher Hanae Endo based on IPC database (May 27, 2019)

**Table 11. Share of Top Ten Countries Winning Medals at the London 2012 Paralympic Games**

	NPC	Gold	Silver	Bronze	Total	Medal Point	Region	Share of Medals***	Share of Points****
1	China	95	71	65	231	492	Asia	15.2%	16.2%
2	Great Britain	34	43	43	120	231	Europe	7.9%	7.6%
3	Russia	36	38	28	102	212	Europe	6.7%	7.0%
4	United States	31	29	38	98	189	America	6.4%	6.2%
5	Australia	32	23	30	85	172	Oceania	5.6%	5.7%
6	Ukraine	32	24	28	84	172	Europe	5.5%	5.7%
7	Germany	18	26	22	66	128	Europe	4.3%	4.2%
8	France	8	19	18	45	80	Europe	3.0%	2.6%
9	Brazil	21	14	8	43	99	America	2.8%	3.3%
10	Spain	8	18	16	42	76	Europe	2.8%	2.5%

\*\*\*The share of medals is the total number of medals won by a country shown as a percentage of all medals.

\*\*\*\*The share of medal points is the total medal points of each country, calculated, for matter of convenience, by adding three points for each gold medal, two points for each silver medal, and one point for each bronze medal, shown as a percentage of all medal points.

Compiled by Researcher Hanae Endo based on IPC database (May 27, 2019)

**Table 12. Share of Top Ten Countries Winning Medals at the Rio Paralympic Games**

	NPC	Gold	Silver	Bronze	Total	Medal Point	Region	Share of Medals***	Share of Points****
1	China	107	81	51	239	534	Asia	15.0%	16.8%
2	Great Britain	64	39	44	147	314	Europe	9.2%	9.9%
3	Ukraine	41	37	39	117	236	Europe	7.3%	7.4%
4	United States	40	44	31	115	239	America	7.2%	7.5%
5	Australia	22	30	29	81	155	Oceania	5.1%	4.9%
6	Brazil	14	29	29	72	129	America	4.5%	4.1%
7	Netherlands	17	19	26	62	115	Europe	3.9%	3.6%
8	Germany	18	25	14	57	118	Europe	3.6%	3.7%
9	Poland	9	18	12	39	75	Europe	2.4%	2.4%
10	Italy	10	14	15	39	73	Europe	2.4%	2.3%

Compiled by Researcher Hanae Endo based on IPC database (May 27, 2019)

**Table 13. Share of Top Ten Countries Winning Medals at the Sochi 2014 Paralympic Winter Games**

	NPC	Gold	Silver	Bronze	Total	Medal Point	Region	Share of Medals***	Share of Points****
1	Russia	30	28	22	80	168	Europe	37.0%	38.9%
2	Ukraine	5	9	11	25	44	Europe	11.6%	10.2%
3	United States	2	7	9	18	29	America	8.3%	6.7%
4	Canada	7	2	7	16	32	America	7.4%	7.4%
5	Germany	9	5	1	15	38	Europe	6.9%	8.8%
6	France	5	3	4	12	25	Europe	5.6%	5.8%
7	Austria	2	5	4	11	20	Europe	5.1%	4.6%
8	Slovakia	3	2	2	7	15	Europe	3.2%	3.5%
9	Japan	3	1	2	6	13	Asia	2.8%	3.0%
10	Great Britain	1	3	2	6	11	Europe	2.8%	2.5%

Compiled by Researcher Hanae Endo based on IPC database (May 27, 2019)

**Table 14. Share of Top Ten Countries Winning Medals at the PyeongChang Paralympic Games**

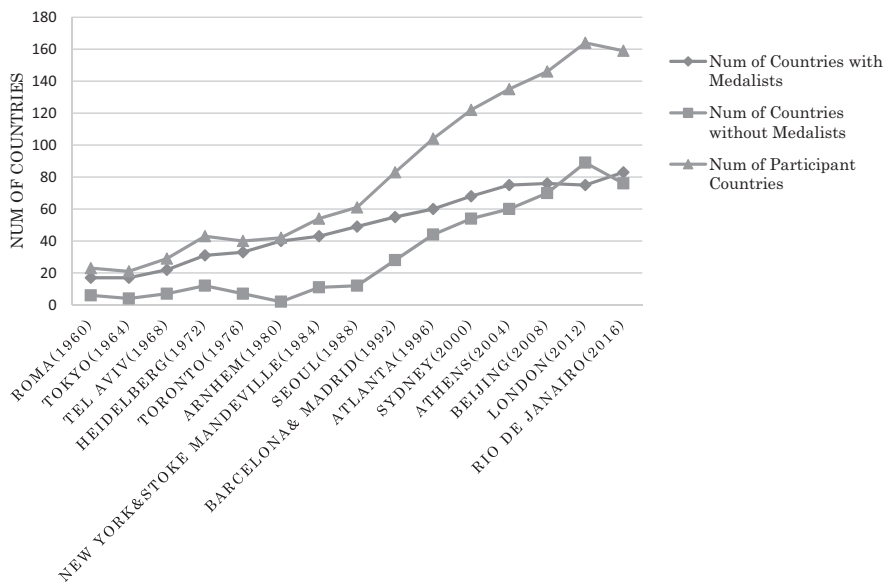
	NPC	Gold	Silver	Bronze	Total	Medal Point	Region	Share of Medals***	Share of Points****
1	United States	13	15	8	36	77	America	16.6%	17.9%
2	Canada	8	4	16	28	48	America	12.9%	11.1%
3	Ukraine	7	7	8	22	43	Europe	10.1%	10.0%
4	France	7	8	5	20	42	Europe	9.2%	9.7%
5	Germany	7	8	4	19	41	Europe	8.8%	9.5%
6	Belarus	4	4	4	12	24	Europe	5.5%	5.6%
7	Slovakia	6	4	1	11	27	Europe	5.1%	6.3%
8	Japan	3	4	3	10	20	Asia	4.6%	4.6%
9	Norway	1	3	4	8	13	Europe	3.7%	3.0%
10	Netherlands	3	3	1	7	16	Europe	3.2%	3.7%

Compiled by Researcher Hanae Endo based on IPC database (May 27, 2019)

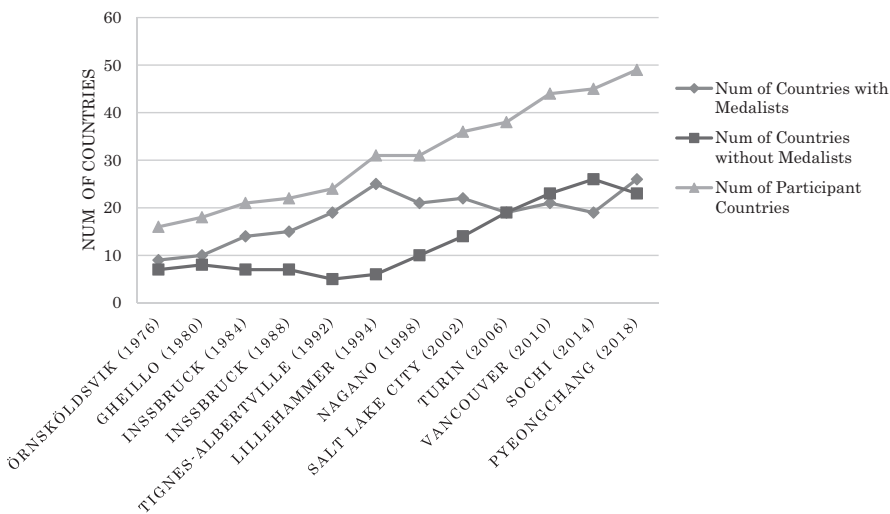
In terms of host cities of the 15 summer Paralympic Games held between 1960 and 2016, only six were hosted outside of Europe and the U.S., namely, Tokyo in 1964, Tel Aviv in 1968, Seoul in 1988, Sydney in 2000, Beijing in 2008, and Rio de Janeiro in 2016. For the 12 winter Paralympic Games held since 1976, only two were hosted outside of Europe and North American countries, namely, Nagano in 1998 and PyeongChang in 2018.

When the ratio of countries winning medals to countries not winning any medals is observed chronologically from the beginning of the history of the Paralympic Games, we can see that as shown in Figure 4, since the Seoul Paralympic Games in 1988, the increase in the number of participating countries and the increase in the number of countries not winning any medals are practically in parallel, suggesting that progress has not necessarily been made in closing the disparity. A similar trend can also be observed for the winter Paralympic Games, starting from the time of the Nagano Games.





**Figure 4. The Number of Countries Winning Medals and Countries Not Winning Any Medals (Summer Games)**  
 Compiled by Researcher Hanae Endo based on IPC database (May 27, 2019)



**Figure 5. The Number of Countries Winning Medals and Countries Not Winning Any Medals (Winter Games)**  
 Compiled by Researcher Hanae Endo based on IPC database (May 27, 2019)

## Towards the Future

As the public's knowledge of the Paralympics grows and their interest in Paralympic events is deepened, the issues and challenges facing the Paralympics are increasingly coming to the fore and becoming more apparent. In particular, because there are expectations that the Paralympics may have a positive ripple effect on changing the awareness and behavior of disabled and able-bodied people in relation to promoting social participation of people with disabilities, one of the central themes of future Paralympic research should be to study how the significance of the Paralympics may change or evolve with its development. In that respect, it would be fortunate if this article were to contribute in any small way to discussions on the future success of the Paralympics.

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# The Impact of Resource Inequality upon Participation and Success at the Summer and Winter Paralympic Games

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## Introduction

Alongside the issues of health, inclusion and empowerment that are addressed as part of the sport for development agenda, the most visible challenge faced by the IPC, with direct significance to its legitimacy as an international advocate for disability rights, is the gulf in resourcing for Para-sports, between resource-poor and resource-rich regions. This gulf creates an asymmetry between national teams, evident in levels of representation and podium success at Para-sport events, significant enough to challenge the very notion of the Paralympic Movement as truly international in its reach.

(Beacom, 2018; p. 354)

The above claim made by Beacom (2018) forms the basis for this piece of research. In a study of National Governing Bodies of Olympic sports in Great Britain and their relationships with FTSE 100 companies, Morrow and Robinson (2013) claim that “predictably the unequal distribution of valued resources leads to asymmetric exchange and power relations between organisations and arguably it is the less resource rich organisation that will be the less powerful partner” (p. 414). In terms of disability and Paralympic sport, Novak (2014) claims that there is a failure “to recognize a persistent ‘disability divide’ between the communities who possess the economic means to compete on the playing field and those who do not” (p.57). Although both Beacom and Novak make the claim for a link between access to resources and representation and podium success, it would appear that this claim has

yet to be empirically tested. The aim of this paper, therefore, is to investigate these claims in terms of participation and medal success at the Paralympic Games in order to ascertain whether, and to what extent, access to resources might play a part and to investigate some of the possible reasons for this.

## The Growth of the Paralympic Games

For an event that began its life in 1948 as a small demonstration to the public at a spinal injury rehabilitation centre in Stoke Mandeville, UK, of what people with spinal cord injuries could achieve (at a time when society generally consigned most people with disabilities to the scrapheap of life), the Paralympic Games have grown beyond all recognition in a relatively short space of time (Brittain, 2016). This is particularly true of the last thirty years starting in Seoul 1988 since when the Paralympic Games have consistently been held in the same host city and venues as the Olympic Games. Brittain (2016) claims that this connection to the Olympic Movement has played a major part in the growth of the Paralympic Games. These Games since 1988 are often referred to as the modern Paralympic Games (Legg & Steadward, 2011). Over the last thirty years, tables 1 and 2 clearly show that involvement in the summer Paralympic Games has developed rapidly on all continents, but with some major differences. Africa in particular has grown from just four competing nations in 1988 to forty-two in 2016. However, even though the number of competing nations from Africa at the Rio 2016 Paralympic Games was exactly the same as the number of competing nations from Europe (42) there was a marked difference in average team size between the two continents (Europe = 42 athletes, Africa = 7 athletes). The differences for the winter Paralympic Games (see table 2) are even more stark with the vast majority of teams and athletes at the latest Games in PyeongChang 2018 coming from Europe. One of the aims of this paper is to investigate the potential role of resource accessibility in deciding who can and who cannot participate.

**Table 1. NPC and Number of Athletes Participation by Continental Association at the summer Paralympic Games (1988 – 2016)**

Location	Europe	Americas	Africa	Asia	Oceania	Total
Seoul	(27) 1479 (55)	(11) 706 (64)	(4) 73 (18)	(16) 610 (38)	(2) 189 (95)	(60) 3059 (51)
Barcelona	(33) 1798 (54)	(16) 630 (39)	(11) 94 (9)	(20) 316 (16)	(2) 147 (74)	(83) 3001 (36)
Atlanta	(41) 1939 (47)	(18) 654 (36)	(16) 130 (8)	(25) 339 (14)	(3) 197 (66)	(103) 3259 (32)
Sydney	(41) 2076 (53)	(20) 668 (33)	(20) 213 (11)	(33) 583 (18)	(7) 339 (48)	(122) 3882 (32)
Athens	(42) 1927 (46)	(24) 695 (29)	(28) 216 (8)	(36) 778 (22)	(5) 192 (38)	(135) 3808 (28)
Beijing	(45) 1954 (43)	(24) 751 (31)	(30) 251 (8)	(40) 858 (21)	(7) 197 (28)	(146) 4011 (27)
London	(47) 2085 (44)	(28) 803 (29)	(39) 307 (8)	(42) 854 (20)	(8) 188 (23)	(164) 4237 (26)
Rio	(44) 1859 (42)	(26) 1010 (39)	(42) 314 (7)	(39) 925 (24)	(6) 207 (35)	(157) 4315 (27)

Right Brackets = No. of NPCs; Middle Figure = Total No. of Athletes; Left Brackets = Average Team Size

**Table 2. NPC and Number of Athletes Participation by Continental Association at the winter Paralympic Games (1992 – 2014)**

Location	Europe	Americas	Africa	Asia	Oceania	Total
Tignes	(18) 288 (16)	(2) 48 (24)	(0) 0 (0)	(2) 17 (9)	(2) 12 (6)	(24) 365 (15)
Lillehammer	(24) 367 (15)	(2) 61 (31)	(0) 0 (0)	(3) 30 (10)	(2) 13 (6)	(31) 471 (15)
Nagano	(22) 396 (18)	(2) 82 (41)	(1) 1 (1)	(4) 74 (19)	(2) 9 (5)	(31) 562 (18)
Salt Lake	(25) 273 (11)	(3) 86 (29)	(1) 1 (1)	(5) 48 (10)	(2) 8 (4)	(36) 416 (12)
Torino	(25) 315 (13)	(4) 92 (23)	(1) 1 (1)	(6) 54 (9)	(2) 12 (6)	(38) 474 (12)
Vancouver	(30) 310 (10)	(5) 101 (20)	(1) 1 (1)	(6) 77 (13)	(2) 13 (7)	(44) 502 (11)
Sochi	(30) 334 (11)	(6) 128 (21)	(0) 0 (0)	(7) 66 (9)	(2) 10 (5)	(45) 538 (12)
PyeongChang*	(31) 273 (9)	(6) 131 (22)	(0) 0 (0)	(9) 116 (13)	(2) 14 (7)	(48) 534 (11)

Right Brackets = No. of NPCs; Middle Figure = Total No. of Athletes; Left Brackets = Average Team Size

\*Does not include neutral Paralympic athletes ((1) 30 (30))

## Resource Dependency Theory

Resource Dependency Theory (RDT) was first introduced by Pfeffer and Salancik (1978) in order to explain how an organisation's strategy, structure and survival are contingent on resources and dependency relationships with external institutions in its environment. Hillman et al (2009) claim that RDT has become highly influential within the fields of management and strategy due to the importance of resource availability on the ability of organisations to operate, develop and succeed. These

resources can be tangible (physical and financial) or intangible (corporate reputation, employees' knowledge, experience and skills, and their commitment and loyalty) (O'Boyle & Hassan 2014; Pfeffer & Salancik, 1978). According to Yeager et al (2015) RDT focuses upon the significance of the external environment in understanding the decisions made by organisations, with those possessing the necessary resources finding themselves in a position of power and those that find themselves dependent upon others being vulnerable to control (Malatesta & Smith, 2014). The organisation in possession of the most important resources within a network will typically hold a strategic control within that network (Yan & Gray, 2001). Problems may arise for an organisation within that network not only because it is dependent upon its environment, but also because the environment itself is not dependable or certain (Pfeffer and Salancik, 1978). According to Giannoulakis et al (2017), RDT offers an appropriate framework to understand organisations operating with 'shifting' sources of funds, which partly describes the situation for most National Paralympic Committees (NPCs) and particularly those from less developed nations, where sources of funds may not only be extremely uncertain, but also extremely limited even in the best of times. Moreover, studies such as Vos et al (2011) and Wicker and Breuer (2011) apply RDT to the sporting context, with Walker and Hayton (2017) also applying RDT to the disability sport context. This paper will, therefore, seek to use RDT in order to investigate the success of NPCs at the Paralympic Games and whether there is a link between the Inequality-adjusted Human Development Index (IHDI) ranking of a country and its participation and potential for success at the Games.

## People with Disabilities and Restricted Resources

Britain's Department for International Development (DFID) broadly defines social exclusion as a process by which certain groups are systematically disadvantaged because they face discrimination based on their ethnicity, race, religion, sexual orientation, caste, descent, gender, age, disability, HIV status, migrant status, or where they live. Discrimination occurs in public institutions, such as the legal system or education and health services, as well as social institutions like the household (DFID, 2005). Many authors within the field of critical disability studies (e.g. Baffoe,

2013; Sloane & Jones, 2012; Barnes & Mercer, 2005) claim that people with disabilities are systematically and deliberately prevented from accessing the resources that most non-disabled people, particularly in developed countries, take for granted (e.g. education, employment). This occurs through an ideology known as ableism that Wolbring (2012) describes as “prejudicial attitudes and discriminatory behaviours toward persons with a disability. Definitions of ableism hinge on one’s understanding of normal ability and the rights and benefits afforded to persons deemed “normal”” (p.78). Ableism devalues people with disabilities and results in segregation, social isolation and social policies that limit opportunities for full societal participation. This restriction from resources in all areas of life makes participation in life in general increasingly difficult, with the vast majority of people with disabilities living at or below the poverty line (Stapleton et al, 2006). There is a strong link between poverty and disability, with both disability leading to poverty and poverty being a cause of disability highlighted by the fact that in Kenya roughly 81% of persons with disabilities have parents or guardians who come from the poorest economic levels (Crawford, 2004; p.12-13) According to Beal and Piron (2005) social exclusion can refer to individuals or groups, is based upon social relations (putting power at the centre of analysis), includes an institutional dimension involving organisations and processes that exclude individuals or groups from the decision making process, has a causal dimension (such as prejudice) and involves a multi-dimensional process highlighting the intersectionality of various aspects of discrimination such as gender and disability. Brittain (2006) states that:

Oliver (1990) claims that since the fifties an upswing in the economy in Britain led to an increasing concern to provide more services for disabled people out of an ever increasing national wealth. That is not to say that social policy with regard to the disabled is purely a matter of economic determinism, although the financial implications of any such policies will play an important regulatory role. Prevalent religious and cultural beliefs within a particular society will also play a part in deciding the impact economics will play in determining whether a particular policy will be implemented or not. It could be argued, therefore, that one possible measure of social and economic success within a particular country is the treatment and social status of minority groups such as the



disabled. Given the costs of taking part in and achieving success in an elite sports event for disabled athletes such as the Paralympic Games it could also be argued that such participation may be an indicator of how well people with disabilities are regarded within the nation that they represent.

(Brittain, 2006; p. 39)

Unfortunately, persons with disabilities are also susceptible to internalising stereotypes and negative beliefs (Campbell, 2008). This process is called internalised ableism and is similar to internalised racism and sexism regarding other devalued groups. Internalised ableism in sport is experienced by athletes with disabilities, coaches and administrators through their acceptance of the status quo and second-class status compared to non-disabled athletes and non-disabled sports (Brittain, Legg & Wolff, 2017). Today's mainstream sports organisations, sports media, sports sponsors and the overall sports industry place an extensive focus on non-disabled athletes and non-disabled sports. While sports opportunities for persons with disabilities continue to emerge in many international communities, athletes with disabilities and disability-specific sports largely remain segregated and invisible from the mainstream sports environment (Brittain, 2016). Historic and current barriers and prejudices have reinforced the marginalisation of persons with disabilities in sports. Building on Brittain's quote (above) it would appear that in countries that are classified as developing, where the economic and social resources for the country as a whole may be restricted, the impact of ableism upon the lives of people with disabilities in terms of their access to resources, and therefore opportunities to take part in sport, are likely to be even more restricted than for those living in a more developed country where there may be more resources to go around.

## People with Disabilities, Resources and Access to Sport

Farkas Karageorgos and Higgs (2018) claim that there is a link between disability and poverty and that disability is both a cause and consequence of poverty, with the Council of Europe (2014) recognising that people with disabilities are often treated as second class citizens who have to fight for even basic rights. Farkas Karageorgos and Higgs (2019) list a number of challenges that can arise including "poor access to

venues, denial of entry to a mainstream school, or being prevented from participating in sport and recreation alongside peers without disabilities” (p. 275). Devine (1997) claims that society has a prescribed set of standards by which we are all measured and when someone’s biological make-up or function fails to meet these standards, they are ‘assumed to be inferior and are subject to a decrease in inclusion in society’ (p. 4). This inclusion includes access to the available resources within that society. Brittain (2016) claims that ‘this is equally true for many aspects of life, but in the realm of sport, where one of the key aims is to distinguish between different levels of biological make-up and function through tests of physical strength, speed and endurance, this is especially true’ (p. 75). This potential exclusion from sport begins within the wider social structure through the kinds of exclusions outlined above (education, employment), which lead to many people with disabilities living at or below the poverty line (Stapleton et al, 2006) and, therefore, spending what little resources they have fighting to survive rather than involving themselves in sport or any other kind of leisure activity. Indeed, Crawford (2004) highlights inadequate nutrition for athletes with disabilities as a major problem in Kenya with several coaches cited as being fearful of pushing their athletes too hard for fear they had not even eaten that day.

Even if they find they are lucky enough to have the necessary resources and the desire to take part in sport, a number of other issues may prevent them from actually doing so. Firstly, people with disabilities are often socialised into believing that, due to their impairments, they are incapable of participating in sport, which is part of the process of internalised ableism outlined above. Secondly, the environment in which sporting activity takes place (e.g. facilities) has historically been designed for the non-disabled population (based upon the assumption that people with disabilities are incapable of doing sport) and so gaining access to the facilities can often prove extremely difficult, if not impossible (Jaarsma et al, 2014). Thirdly, even if they can gain access to the facilities, there may well be a lack of sporting opportunities for them to participate in or a lack of coaches with the knowledge or inclination to teach them (Dieffenbach & Statler, 2012). On an organisational level, the priority given within society to non-disabled sport also impacts heavily upon resource availability for sport aimed at people with disabilities, especially if the resources available for sport as a whole are already limited. To put this into some kind of perspective,

according to Tony Naar, former Information Manager for the Australian Paralympic Committee (an NPC in the Very High IHDI rank), the funding for the Australian Paralympic team for 2017-2018 amounts to around 13.7% of what the Australian Olympic team will receive for the same period (Naar, 2017). Therefore, in terms of NPCs from less developed countries, on a Paralympic level Dowling et al (2017) point out that 'while each NPC may have formal rights and responsibilities within the Movement, many are under resourced to the point of not being able to provide the most basic of services such as taking athletes to the Paralympic Games'.

## Methods

### Research Design and Data Collection

The research for this article involved a comparison of NPC participation from countries sorted into their relevant United Nations Inequality-adjusted Human Development Index ranking (United Nations, 2015) and then compared against their respective team size data and medal success as found on the International Paralympic Committee (IPC) results database (IPC website, 2017a). According to the United Nations (2015), the Human Development Index (HDI) is a summary measure of average achievement by countries in key dimensions of human development: a long and healthy life, being knowledgeable and having a decent standard of living. However, the IHDI takes into account not only the average achievements of a country on health, education and income, but also how those achievements are distributed among its population by "discounting" each dimension's average value according to its level of inequality. Countries are then placed into four categories of development; Very High (lowest inequality), High, Medium and Low (highest inequality).

### Data Analysis

Data from the IPC results database, including team sizes (total and by gender) and medal success, was taken for all summer Paralympic Games from Sydney 2000 and all winter Paralympic Games from Nagano 1998 onwards and placed into Excel spreadsheets. Each competing NPC at a particular Games was then assigned with its

corresponding rank (Very High, High, Medium and Low) from the United Nations IHDI ranking list (United Nations, 2015). Each set of data (Team size and Medals won) was then grouped according to this assigned ranking. In terms of medal success data only countries winning at least one medal was included. Once this had been completed, this allowed for the total number of NPCs in each group ranking to be ascertained, including the average team size (as well as average number of men and women) and the total number of medals won by NPCs within each ranking. In addition, the data for the most recent summer Paralympic Games (Rio 2016) was analysed further to identify the number of NPCs within each ranking that had team sizes of only one, three or less, and 5 or less athletes as well as the number of teams with all male or all female athletes. Finally, the medal events in which those NPCs in the Low IHDI ranking won medals at the last three summer Paralympic Games (Beijing 2008, London 2012 and Rio 2016) were analysed further. The results of this data analysis were then examined in terms of the potential impact of resource dependency in order to try and ascertain to what extent resource dependency theory may or may not provide an explanation for the results.

## Results

### The Summer Paralympic Games

#### *Participation*

An analysis of the participation of NPCs by IHDI ranking in terms of team size at the last three summer Paralympic Games highlights several distinct patterns. As can be seen in table 3, the number of participating NPCs from countries in the low IHDI ranking has risen nearly fifty percent in the last decade alone. However, the average team size is massively skewed towards those NPCs from countries in the Very High and High IHDI rankings, where the average team size is approximately seventeen times and eleven times (respectively) bigger than that for the NPCs from the Low IHDI ranking. With the one exception of the Low ranked countries in Rio 2016, the average number of women as a percentage of the overall average team size also decreases consistently from NPCs in the highest IHDI ranking to the lowest. However, the result for the women from Low IHDI teams in Rio is possibly just a

result of the very small overall team sizes for these NPCs.

**Table 3. Average NPC team size by IHDI and gender at the last three summer Paralympic Games (2008-2016)**

Country IHDI Band	Average Number in Team (Beijing 2008)				Average Number in Team (London 2012)				Average Number in Team (Rio 2016)			
	NPCs	Men	Women	Total	NPCs	Men	Women	Total	NPCs	Men	Women	Total
Very High	51	31.71	17.49	49.20	53	31.02	17.66	48.68	51	30.41	19.76	50.17
High	41	20.22	10.02	30.24	45	19.53	10.96	30.49	43	20.04	12.74	32.78
Medium	30	4.27	1.97	6.24	30	5.83	2.17	8.00	29	6.17	2.34	8.52
Low	24	2.29	0.83	3.12	36	2.25	0.81	3.06	34	1.59	1.32	2.91

As can be seen in table 4 the number of NPCs with only one athlete also increases greatly from the highest IHDI ranking to the lowest, with 52.9% of countries in the Low IHDI ranking having only one athlete in the team. It can also be seen from table 4 that 50% of all NPCs in the lowest and 44.8% of NPCs in the medium IHDI rank had no women at all in their team. None of the NPCs without a male athlete had more than two women in their team and both of the teams in the Low IHDI ranking with no men only had a single female athlete in their team.

**Table 4. Number of NPCs by IHDI group with only one, three or less and 5 or less athletes and no men or no women at the Rio 2016 summer Paralympic Games**

	NPCs	1	3 or <	5 or <	No Men	No Women
Very High	51	3	9	11	3	4
High	43	4	18	21	1	5
Medium	29	10	18	19	0	13
Low	34	18	27	31	2	17
Total	157*	35	72	82	6	39

\*Does not include the two male Independent Paralympic Athletes

### *Medal success*

As can be seen in table 5 NPCs from the Very High and High IHDI rankings have won over 92.9% of all available medals at the last five summer Paralympic Games. The percentage of medals won by NPCs from the Low IHDI ranking has remained

relatively static at around 1.5% over the same period, although the number of NPCs from this rank winning medals in Rio 2016 did increase to a new high of seven. However, this could conceivably be down to the absence of Russia, who finished second in the medal table at London 2012, but were banned from participating in Rio by the IPC due to allegations of state sponsored doping offences (IPC, 2016b).

**Table 5. Percentage of all available medals won by IHDI group at the last five summer Paralympic Games.**

	1. Very High	2. High	1 + 2	3. Medium	4. Low	3 + 4
Sydney 2000	77.6 (41)	17.1 (19)	94.7 (60)	4.1 (4)	1.2 (4)	5.3 (8)
Athens 2004	67.1 (43)	26.8 (20)	93.9 (63)	4.5 (7)	1.5 (5)	6.0 (12)
Beijing 2008	58.0 (41)	36.6 (23)	94.6 (64)	3.8 (9)	1.6 (5)	5.4 (14)
London 2012	55.1 (40)	39.7 (23)	94.8 (63)	3.8 (8)	1.4 (4)	5.2 (12)
Rio 2016	55.4 (41)	37.5 (23)	92.9 (64)	5.6 (12)	1.5 (7)	7.1 (19)

Numbers in brackets are the number of NPCs from that IHDI ranking winning medals

*Statistical analysis of the participation and medal success data from the Rio 2016 Paralympic Games*

Statistical analysis of four key variables (1. IHDI rank (1 = Very High, 4 = Low); 2. Total team size; 3. Total number of women in the team and 4. Total number of medals won) from the participation and medal success data for the Rio 2016 Paralympic Games delivered statistically significant correlations (at the 0.01 level) between all variables (see table 6). The implications of this analysis appear to be:

- The higher the IHDI rank of a country i. the bigger its team is likely to be; ii. the more women are likely to be in that team, and iii. the more medals it is likely to win.
- The bigger the team i. the more women are likely to be in that team and ii. the more medals it is likely to win.
- The more women they have in a team the more medals they are likely to win.

Some of these correlations would appear to be self-evident as having a larger team will mean that more events and sports can be entered, thus increasing the opportunities to win medals. However, the correlation between IHDI rank and team size would appear to highlight a strong link between resource availability and opportunities by people with disabilities to participate in sport, as well as resource

availability and the possibility to win medals at the Paralympic Games.

**Table 6. Pearson Correlations for NPCs participating at the Rio 2016 summer Paralympic Games (N=157)**

	IHDI Rank	Team Size	Women	Medals
IHDI Rank 1= V. High, 4= Low	1	-.352**	-.330**	-.245**
Team Size	-.352**	1	.983**	.895**
Women	-.330**	.983**	1	.923**
Medals	-.245**	.895**	.923**	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

*Analysis of the medals won by NPCs in the Low IHDI rank at the Rio 2016 summer Paralympic Games*

When the medals won at the last three summer Paralympic Games by NPCs in the Low IHDI rank were investigated and analysed further some interesting results emerged. Table 7 lists each of the NPCs from the Low IHDI ranking who won medals at the last three summer Paralympic Games along with the number of medals won.

**Table 7. Medals won by NPCs in the Low IHDI Group at the last three summer Paralympic Games (2008-2016).**

Beijing 2008					London 2012					Rio 2016				
NPC	G	S	B	T	NPC	G	S	B	T	NPC	G	S	B	T
Kenya	5	3	1	9	Nigeria	6	5	2	13	Nigeria	8	2	2	12
Nigeria	4	4	1	9	Kenya	2	2	2	6	Kenya	3	1	2	6
Angola	0	3	0	3	Angola	1	0	1	2	Ethiopia	0	1	0	1
Pakistan	0	1	0	1	Ethiopia	0	1	0	1	Ivory Coast	0	1	0	1
Papua New Guinea	0	1	0	1						Uganda	0	1	0	1
										Mozambique	0	0	1	1
										Pakistan	0	0	1	1

The first point of interest to emerge was that the medals have only come from two sports (Athletics (Track and Field) and Powerlifting) despite there being at least twenty sports on the programme at each of the three Games. In addition, all of the powerlifting medals (27 of 68) were won by one nation – Nigeria. According to Mark (2012) the Nigerian powerlifters have been successful ‘despite disorganisation and

inadequate funding'. Both Mark (ibid) and the BBC (2016) claim that the success of the Nigerian powerlifters is down largely to the passion and drive of one man, Aare Feyisetan, himself a wheelchair user and former powerlifting champion at the All Africa Games, who coaches and advocates for the Nigerian powerlifting team. Despite their success at the Paralympic Games, Feyisetan claims that his team leave their homes at 5.00am three times a week and push themselves along roads that non-disabled people find difficult to traverse, to start training at 6.00am using 'broken benches, inside the dark and dilapidated National Stadium in Lagos' (BBC, 2016). However, Feyisetan still fears that some of his gold medal winning athletes still face a life of begging on the streets once they retire, such is the situation for people with disabilities in Nigeria. The success of the Nigerian Paralympic powerlifting athletes appeared to have not gone completely unnoticed by the Nigerian government, with their Sports Minister claiming 'The lesson for us is that rather than spread our resources thin, we focus on areas where we can win. We're going to put more money into the sports where we have a comparative advantage' (Mark, 2012). This comment highlights a view that it is only success that is important, with little thought given to the potential social benefits that might be gained from a nation's participation in the Paralympic Games and although this comment may have given some hope for current Nigerian powerlifters, and maybe a few track and field athletes, it would appear to offer little for the development of other Paralympic sports, nor the plight of people with disabilities more generally within Nigerian society. However, given that the comments by Feyisetan reported by the BBC (2016) came four years after the Sports Minister's comment, it would appear that little has actually changed. In fact the powerlifters actually won three less medals at the Rio 2016 Games than in London four years earlier. It is clear that the Nigerian team is successful, despite and not because of the resources provided to them in terms of facilities, equipment and government support, and that the key resource that has made them successful are the passion and dedication of the national coach and his athletes for their sport.

A description of the types of athletics (track and field) events that the remaining 41 medals were won in is shown in table 8 (below).



**Table 8. Classification of events where countries with a Low IHDI ranking have been successful at the last three summer Paralympic Games.**

Type of Event	Number of Medals
Blind and visually impaired track races (T11-13)	25
Upper limb deficiency e.g. missing hand (T46)	7
Seated throw (minimal disability i.e. F57/58)	5
Mild cerebral palsy (F37/38)	2
Seated throw (F54)	1
Short stature (F40)	1

What table 8 clearly highlights is a total lack of any event requiring either a racing wheelchair or prosthetic lower limb, both of which can be prohibitively expensive for either the NPC or the individual athlete from a country in the Low IHDI rank. The implications of this will be investigated further in the discussion section below. In addition, 25 of the 41 medals (61%) were won by visually impaired track athletes of which 16 (64%) were from Kenyan distance runners with a visual impairment. Kenya has a world renowned tradition in distance running for non-disabled athletes and, therefore, a plentiful supply of training partners and guide runners of sufficient calibre to provide athletes with a visual impairment with an excellent training environment, providing they can overcome other social issues that may arise as a result of their impairment.

## The Winter Paralympic Games

### *Participation*

The link between the IHDI rank of a country and their NPC's participation at the Paralympic Games appears even more apparent when considering the winter Games. NPCs in the Very High and High IHDI rank have consistently made up over 90% of all of the competing NPCs at the last three winter Paralympic Games. Up until PyeongChang 2018 no athlete from a country in the Low IHDI rank has competed at a winter Paralympic Games since Tofiri Kibuuka who competed for Uganda in 1976 and 1980, although it should be noted he was living in Norway throughout this period (Brittain, 2016). PyeongChang 2018 saw the participation of two male athletes from

North Korea, although this was possibly all part of the sports diplomacy efforts being brokered by the IOC between the two Koreas at the time. It will be interesting to see if the participation of North Korea continues at Beijing 2022. The analysis also shows almost exactly the same patterns as for the summer Games with average team size and average number of women in a team decreasing as you move down the IHDI ranks. The result for the men from Low IHDI teams in PyeongChang is likely just a result of there only being the one team from this ranking in PyeongChang (North Korea). Only four NPCs from the Medium IHDI rank have competed since Torino 2006. Mongolia has participated at all three with a maximum team size of 2 men. South Africa competed in Torino 2006 and Vancouver 2010, having previously also competed in the two winter Games before that. However, this was actually just one man, Bruce Warner, who competed in alpine skiing events from 1998 to 2010. Warner lost a leg in a car crash and having previously intended to make a career in hockey, he subsequently embarked on a career in skiing (Brittain, 2016). That a country as successful as South Africa in sport generally and at the summer Paralympic Games is unable to compete at the winter Paralympic Games highlights the impact of many of the issues regarding participation at the winter Paralympic Games. Tajikistan competed in their first winter Paralympic Games in PyeongChang with a male visually impaired cross country skier and their guide. The final participating NPC from the Medium IHDI rank was Uzbekistan with two male athletes in Sochi, although it should be noted that in the latest UN IHDI rankings that came out after this research had been completed, Uzbekistan have been upgraded to the High IHDI rank (UN, 2017). In the case of all four NPCs, all of the participating athletes at the four Games were in standing classifications, which includes visual impairment, amputees, co-ordination problems and muscle weakness in legs and/ or arms (IPC, 2017c).

**Table 9. Average NPC team size by IHDI and gender at the last three winter Paralympic Games (2010-2018)**

Country IHDI Band	Average Number in Team (Vancouver 2010)				Average Number in Team (Sochi 2014)				Average Number in Team (PyeongChang 2018)			
	NPCs	Men	Women	Total	NPCs	Men	Women	Total	NPCs	Men	Women	Total
Very High	30	10.93	3.1	14.03	29	10.83	3.14	13.97	30	11.87	3	14.87
High	12	4.17	2.33	6.5	14	6.64	2.64	9.28	15	4.73	2.8	7.53
Medium	2	1.5	0	1.5	2	1.5	0	1.5	3	0.67	0.33	1
Low	0	0	0	0	0	0	0	0	1	2	0	2

The major difference between the participation rates at the summer and winter Paralympic Games is likely to be access to ice facilities, and geographical i.e. access to the necessary topographical (e.g. mountains) and climatic conditions (e.g. snow) needed for the regular practice of winter sports. Those countries lacking these conditions would need to be able to afford to send athletes to train in areas of the world where these conditions can be found, which, along with the cost of the necessary adapted equipment, makes participation in winter sports for these nations a very expensive proposition indeed.

In addition, as table 10 highlights, lower ranked countries are also less likely to bring competition partners such as guides for visually impaired athletes, as with limited budgets, bringing a competition partner would probably mean bringing one less athlete.

**Table 10. Number of competition partners by NPC and IHDI ranking at PyeongChang 2018.**

Country IHDI Band	NPCs	Number of Competition Partners PyeongChang 2014		
		Men	Women	Total
Very High	30	38	11	49
High	15	21	2	23
Medium	3	1	0	1
Low	1	0	0	0
Total	49	60	13	73

*Medal success*

An analysis of medal success at the last six winter Paralympic Games (see table 11) shows that one hundred percent of all medals have been won by countries in the Very High or High IHDI rank. It would also appear to show that an increasing number of medals have been won by a very small number of NPCs from countries in the High IHDI rank. At the four winter Games prior to PyeongChang 2018 this has been down to the same three NPCs (Belarus, Russia and Ukraine), with Russia in particular winning increasing numbers of medals culminating in them topping the medal table in Sochi with 80 medals, which amounts to 37% of all available medals. However, like Uzbekistan mentioned above, Russia have also been ‘promoted’ in the latest IHDI rankings from High to Very High, and so it is highly likely that this trend will be reversed in the future. This will either be because Russian medals from future winter Games will count towards the Very High rank or, in the case of PyeongChang 2018, that the Russian ban from Paralympic sport for state sponsored doping means that the medals they might have won were picked up by other countries in the Very High rank. Indeed the results from PyeongChang clearly highlight the absence of the Russian team and the impact their absence had upon the medal table. Even if the Neutral Paralympic Team medals are included, given that Russia (where the neutral athletes came from) is now ranked in the Very High IHDI ranking, this would mean that 94.2 percent of all medals in PyeongChang were won by countries in the Very High ranking.

**Table 11. Percentage of all available medals won by IHDI group at the last five winter Paralympic Games**

	1. Very High	2. High	1 + 2	3. Medium	4. Low	3 + 4
Nagano 1998	89.1 (19)	10.9 (2)	100.0 (21)	0	0	0
Salt Lake 2002	87.3 (19)	12.7 (3)	100.0 (22)	0	0	0
Torino 2006	61.5 (16)	38.5 (3)	100.0 (19)	0	0	0
Vancouver 2010	65.5 (18)	34.4 (3)	100.0 (21)	0	0	0
Sochi 2014	50.0 (16)	50.0 (3)	100.0 (19)	0	0	0
PyeongChang**	93.5 (22)	6.5 (3)	100.0 (25)	0	0	0

Numbers in brackets are the number of NPCs from that IHDI ranking winning medals

\*\*Excludes Neutral Athletes Team medals

## Discussion

### *Technology*

Howe (2011; p. 872) claims that 'medal tables at the Paralympic Games have been traditionally dominated by Western nations in part because they are at the forefront of the technological advancements in mobility apparatus'. According to Zettler (2009) the more specialised a piece of equipment becomes, its cost increases greatly due to the smaller pool of potential purchasers. A single racing prosthetic for a below the knee amputee with fitting can cost up to \$20,000 (Runners World, 2015), and a top of the range Invacare Top End Eliminator OSR Racing Chair with carbon fibre wheels costs just over £6,200 (Invacare website, 2017). Novak (2014) claims that the existence of technology has brought those with the economic means to access it closer together, whilst those that do not have access become even more isolated, leading to a 'disability divide'. The implications of this divide have clearly been seen in the results of this research and Novak cites a number of examples of how this impacts upon access to sport for people with disabilities on the wrong side of this divide. He cites Noutcha (2008) who claimed that in Cameroon, only twenty-five competition wheelchairs existed for 500 athletes, with the remaining athletes having to use their own wheelchairs to compete in a range of sports from basketball to athletics. Novak also cites Crawford and Stodolska (2008) who stated that in Kenya 'the high cost of equipment forced athletes to use whatever was readily available, even though it was not proper equipment to be used during international competitions' (p. 141). However, as pointed out earlier in the quote from Naar (2017), it is not only those countries who are in the Low IHDI rank that struggle to access the necessary financial resources, with the Australian NPC apparently only receiving 13.7% the budget of the Australian Olympic Committee. If a country in the Very High IHDI rank like Australia receives such a small fraction of their Olympic counterparts it is highly conceivable that in countries in the Low IHDI ranking, where Olympic budgets are likely to be much smaller by comparison, the budgets for the NPCs are likely to be very small indeed.

### *Controlling the resources*

The resources required by individuals and organisations wishing to take part in sport for people with disabilities and ultimately to participate at the Paralympic Games appear to be controlled and or restricted in a number of ways. Firstly, on an ideological level, the concept of ableism is used to both exclude (to varying degrees depending upon the country and the situation) people with disabilities from the wider society and to restrict their access to the resources necessary to take a full and active role within society. On a national level, this means that access to key resources necessary for life such as education and employment may be restricted, making it extremely difficult for people with disabilities to even consider getting involved in sport. Ableism within the organisational structures of sport and its supporting apparatus (e.g. government, sports federations, sponsors etc.) often mean that resources are prioritised for non-disabled sport. The scarcer the resources and the greater the inequalities within a country, the more likely athletes with disabilities and the organisations that support them are to struggle to gain access to the resources necessary to survive let alone succeed at the highest levels. Finally, control over the resources is also maintained through the power held by those already in control. Novak (2014) claims disability sport at the elite level requires expensive technological inputs in the form of sport prostheses, adapted equipment, and trained coaching, regulated by European and American institutions in the form of the Paralympic Games and the sport federations that lay the ground rules for competition (p. 44). This appears to imply that the more developed nations maintain their power and control over the less developed nations through a monopoly on resources necessary to achieve success at the highest levels. When you put all of these factors together, it is clear to see why there are such disparities in the participation rates and success at the Paralympic Games of those countries in the Low IHDI rank compared to nations ranked above them.

### *The Agitos Foundation and the development of Parasport*

It is clear that IPC has its work cut out if it is to fulfil its proclaimed role as an international advocate of disability rights, rather than just as the organiser of a major sports event. It needs to try and overcome the huge gulf in resources that are apparent from the analysis of results in this paper. According to former IPC

Development Manager Amy Farkas Karageorgos, the IPC has been carrying out development work in Africa since at least 2003 (Farkas Karageorgos, 2015; personal communication) and works closely with the African Sports Confederation of Disabled (ASCOD), which is described in the IPC newsletter 'The Paralympian' of 2003 as the IPC's African regional committee (The Paralympian, 2003; p. 10). The IPC has certainly been running workshops in Africa covering various topics such as classification seminars for doctors and physiotherapists since around the year 2000 (The Paralympian, 2000; p.8). However, more recently, as the IPC has grown in stature and relative financial security, this has allowed them to set up an embryonic version of the IOC's Olympic Solidarity in order to try and promote the development of sport for people with disabilities around the world. The Agitos Foundation, which takes its name from the Paralympic Symbol, the Agitos, was launched by the IPC on Tuesday September 4th, 2012 in order to fulfil its strategic goal in terms of development and education, with the aim of supporting the implementation of the United Nations Convention on the Rights of Persons with Disabilities (2006) and sustaining and delivering on the Paralympic Movement's global objective of helping to create a more inclusive society. It aims to do this by increasing awareness, forming partnerships and securing the necessary resources to implement programmes covering four key areas: i. Sports development; ii. Awareness and education; iii. Advocacy and inclusion and iv. Knowledge and research (IPC Website, 2017d).

In 2016, in the fourth year of their grant support programme (GSP), the Agitos Foundation put out a call for proposals from IPC member organisations to access €650,000 of funding to instigate partnerships in order to implement development projects that support the IPC strategic priorities. The 2016 GSP received a total of 66 applications of which 33 received funding, bringing the total number of projects funded over the four iterations of the programme to 126 (Winters, 2016). In the first three years of the grant support programme the awards were split as follows (see table 12) :

**Table 12: Agitos Foundation Grant awards by region (2012-2015)**

Region	Africa	Americas	Asia	Europe	Oceania	Partnership between Regions
Number of Projects	21	16	9	16	4	27

Source: Agitos Foundation (2016)

In addition, the Agitos Foundation also runs a number of other programmes aimed at increasing awareness, knowledge and capacity of and within the Paralympic Movement.

- The *Organisational Capacity Programme* aimed at empowering NPCs with the knowledge, support and motivation to spread the Paralympic Movement across their countries.
- The *Road to the Games* programmes that aim to develop additional organisational capacity in countries and sub-regions where a Paralympic Games or major event is due to be held.
- The *Proud Paralympian* programme provides education about Paralympic values and practical support throughout an athlete's career.
- The *I'm possible* programme is an education toolkit aimed at young children and aspires to change perceptions and bring about social inclusion through Parasport experiences, including the accomplishments, stories and experiences of Para-athletes.
- The *WoMentoring* programme is part of the IPC's goal to see many more women in positions of influence within the Paralympic Movement.

(IPC Website, 2017e)

In comparison to the IOC's Olympic Solidarity, the Agitos Foundation is certainly a (financially) poor relation, but it is clear that it is doing its best with limited resources to increase the capacity of the human resources available to national organisations to maximise awareness of the Paralympic Movement, and in doing so increase the resources of the parent organisation (the IPC) in its goal to grow and develop. Only by growing interest and opportunity at the national level can the IPC hope to continue to develop interest from sponsors and spectators in Parasport at the international level, as without the necessary resources at the national level (e.g. athletes, spectators, awareness and interest) they cannot hope to develop their own



resources and grow further as an international organisation. In order to further this goal, the Agitos Foundation signed a five year contract in 2016 with the Foundation for Global Sport Development in order to 'raise awareness and knowledge of Parasport across the world' (Pavitt, 2016). By raising awareness and changing attitudes towards sport for people with disabilities, it would appear that IPC is attempting to lessen the prejudice borne of ableism in order that ultimately this may lead to a fairer distribution of resources and, therefore, provide greater resources for sport for people with disabilities, particularly in less developed countries. In addition, this decrease in inequality at the national level may go some way to increase both participation and eventually success at the Paralympic Games by countries in the Medium and Low IHDI ranks. Finally, this in turn may lead to increased resources for the IPC itself from sources such as sponsorship, enabling IPC to then feed more resources into promoting Parasport worldwide.

## Conclusion

The results of this research have clearly highlighted the impact of a number of factors that impact upon the participation and success of nations at the Paralympic Games. Prejudice borne out of an ableist ideology that sees people with disabilities and sport for people with disabilities as something less worthy than non-disabled individuals and non-disabled sport, leads to a restriction of resources in nearly all areas of the lives of people with disabilities that greatly restrict their opportunities for participation in sport. This is particularly the case in less developed nations such as those in the Low IHDI rank, where the United Nations deem inequalities between those who have access to resources and those that do not to be greater. This is likely exacerbated by there being less resources to go around, which leads to the prioritisation of those resources for non-disabled society and non-disabled sport, as it is generally the non-disabled who are the gatekeepers of such resources. This is highlighted by the fact that team sizes from these countries are significantly smaller and they have far less success in terms of medals. This in itself is likely exacerbated as a result of the very nature of Parasport, in that many of the sports require highly expensive technology in order to compete. This again is highlighted by the fact that countries from the Low IHDI rank have only won medals in two sports at the last

three summer Paralympic Games and have not even competed at the last three winter Paralympic Games. In addition, the only events that they have won medals in at the last three summer Games are those that do not require access to expensive technology such as racing wheelchairs or lower limb prostheses, or to major facilities such as swimming pools. Beacom and Brittain (2016) claim that the most visible challenge faced by the IPC is the gulf in resourcing for Paraspport between high- and low-resource nations and regions that remains significant enough to challenge the very notion of the Paralympic Movement as truly international. This gulf in resources is potentially damaging in the longer term to a movement predicated on international representation and, therefore, promoting the rights of people with disabilities in resource-poor regions is critical to the longer-term development of Paralympic sport by countries within these regions. It has clearly made a start in this direction through the work of the Agitos Foundation, but there is still a mountain to climb in order to achieve their aims.

Finally, it should be noted that similar patterns are likely to be found if Olympic participation and success data were to be analysed in comparison to IHDI data. The aim of this paper was to highlight the role of resource accessibility in terms of technology and also the role of ableism in determining participation and success at the Paralympic Games. It would, however, be interesting to carry out further research that compared the results of the Olympic and Paralympic Games.

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# リソースの不平等がパラリンピック夏季・冬季大会への参加と成功に与える影響

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本研究では、リソースの格差がパラリンピック競技大会における各国パラリンピック委員会（NPC）（とりわけ発展途上国の NPC）の参加およびメダル獲得力に与える影響について検証した。国連の不平等調整済み人間開発指数（IHDI）のランキングと、国際パラリンピック委員会の成績データベースを用い、夏季および冬季両パラリンピック大会における各国パラリンピック委員会の参加に関して、チームの規模と獲得メダル数で見た成果という2つの観点から分析した。また、IHDIのランキングが最下位層であった諸国の NPC が夏季パラリンピック大会の直近の3大会においてメダルを獲得した種目の種類についても分析を行った。

分析の結果明らかになったのは、次の点である。IHDIのランキングが下位の国ほど、派遣するチームの規模は極めて小さい傾向にあるとともに、女子選手が一人もいない可能性が高く、またメダル獲得の可能性も著しく低かった。加えて、IHDIのランキングが最下位層の国々が獲得したメダルはいずれも、競技用車椅子や下肢義肢などの高価な用具あるいはスイミングプールなど主要スポーツ施設の利用が必要とされない個人種目においてである。

結論として、とりわけ多くのパラスポーツにおいて求められる技術的要件を踏まえると、IHDIのランキングの最上位層と最下位層の国々の間に存在するリソースの不均衡が、機会の平等を基盤にパラリンピック競技大会の発展・推進を目指す国際パラリンピック委員会の取り組みを阻害する大きな要因となっていることが指摘できる。

キーワード：リソース依存、エイブリズム、パラリンピック大会、参加、成功

# パラスポーツにおける用具の技術開発の現状と課題 —スポーツ開発から一般製品への 技術活用・転用の視点から—

永松陽明

## はじめに

2020年に開催される東京2020パラリンピック競技大会に向けて選手を支える用具や機器開発も活発化している。ベンチャー企業であるサイボーグと東レなどの取組<sup>1</sup>や三菱ケミカルや産業技術総合研究所などの取組<sup>2</sup>をはじめ、スポーツ義足開発には相次いで新規参入があり、スポーツ用の車椅子開発企業の取組や活躍は、新聞やテレビに数多く取り上げられている。また、チェアスキーをはじめとして様々な個別技術開発を整理・調査された論文も数多くある<sup>3, 4, 5</sup>。

活発化する技術開発では先端的な素材や構造などが新しく作られるが、そうした技術は一般の製品に活用・転用され、一般の消費者もそのメリットを享受していることが想定される。これまでも実際に、多方面の分野で技術の活用や転用が行われており<sup>6, 7, 8, 9, 10</sup>、軍事技術としてアメリカで開発されたGPS（Global Positioning System: 全地球測位システム）がカーナビゲーションシステムや時計の時刻設定などの民間利用に活用されていることはその代表例である。このような活用や転用がパラスポーツの技術開発に数多く見受けられるならば、ビジネスチャンスがある市場として、多くの企業に注目されると同時に市場参入が期待され、一般の消費者に更なる便益がもたらされると考えられる。また、このような視点での調査は僅少である。

以上の認識のもと、パラスポーツ技術開発から一般製品への技術活用・転用の流れの解明をねらいに、パラスポーツにおける主な用具（車椅子・義肢・チェアスキー）の開発の現状と課題を把握するために調査を行った。

## 1. 調査概要

### (1) 調査内容

回答者の負担を考慮し、パラスポーツに対する取組と技術貢献を問う項目に絞った表1の調査票を設定した。尚、展開した調査票には本研究のねらいである技術に着目している旨を記載している。

表1 パラスポーツにおける用具の技術開発に関する調査票

No.	調査項目
1	回答企業・組織の名称, 回答者の名前と職位
2	<p>【回答企業・組織の取組について】</p> <p>パラスポーツ, パラリンピックに関して取組を行っている場合は①, いない場合は②にチェックをしてください。</p> <p style="text-align: center;"><input type="checkbox"/>①取組を行っている                      <input type="checkbox"/>②取組を行っていない</p>
3	<p>【2にて①と回答された場合】</p> <p>取組を実施している中で, 技術開発全般に貢献していることや他の製品・サービスへの活用は行われているか。ある場合には①, ない場合には②にチェックをしてください。</p> <p style="text-align: center;"><input type="checkbox"/>①ある                      <input type="checkbox"/>②ない</p> <p>①の場合, 具体的な内容をお教えてください。</p>
4	<p>【2にて②と回答された場合】</p> <p>取組を行っていない理由をお教えてください。</p>

### (2) 調査対象

表1で設定した調査票を基に日本車椅子シーティング協会(注1)加盟企業及び車椅子・義肢・チェアスキーに関連する企業・組織にアンケートとヒアリングを実施した。対象組織・回答者を表2と表3に示す。

アンケートにおいては, 日本車椅子シーティング協会の加盟企業133社のうち15社から回答を得ている。そのうち3社に対してはヒアリングも実施した。



表2 アンケートを実施した対象組織・回答者

No.	回収日	対象組織	回答者職位	企業所在地
1	2018年2月19日	車椅子メーカー	経営責任者	福岡
2	2018年2月19日	車椅子メーカー	経営責任者	山梨
3	2018年2月19日	車椅子メーカー	経営責任者	埼玉
4	2018年2月19日	車椅子メーカー	経営責任者	埼玉
5	2018年2月21日	車椅子メーカー	営業責任者	東京
6	2018年2月23日	車椅子メーカー	経営責任者	茨城
7	2018年2月26日	車椅子メーカー	営業責任者	茨城
8	2018年3月5日	車椅子メーカー	経営責任者	岐阜
9	2018年3月5日	車椅子メーカー	経営責任者	東京
10	2018年3月5日	車椅子メーカー	経営責任者	神奈川
11	2018年3月5日	車椅子メーカー	経営責任者	兵庫
12	2018年3月6日	総合メーカー	開発責任者	大阪

表3 ヒアリングを実施した対象組織・回答者

No.	実施日	対象組織	回答者職位	場所
13	2018年1月11日	車椅子メーカー	広報担当者	千葉
14*	2018年1月31日	総合メーカー	製造責任者	大阪
15	2018年3月5日	リハビリ機器提供病院	開発責任者	神奈川
16	2018年3月6日	リハビリ機器提供病院	開発責任者	神奈川
17	2018年3月7日	関連協会	会長, 副会長	東京
18	2018年4月21日	総合メーカー	サービス担当者	東京
19	2018年8月29日	リハビリ機器提供病院	開発責任者	東京
20	2018年8月30日	車椅子メーカー	開発責任者・担当者	愛知
21	2018年8月30日	総合メーカー	開発責任者・担当者	岐阜

\* 表2に示したNo.12の企業と同一企業だが、回答者は異なる。

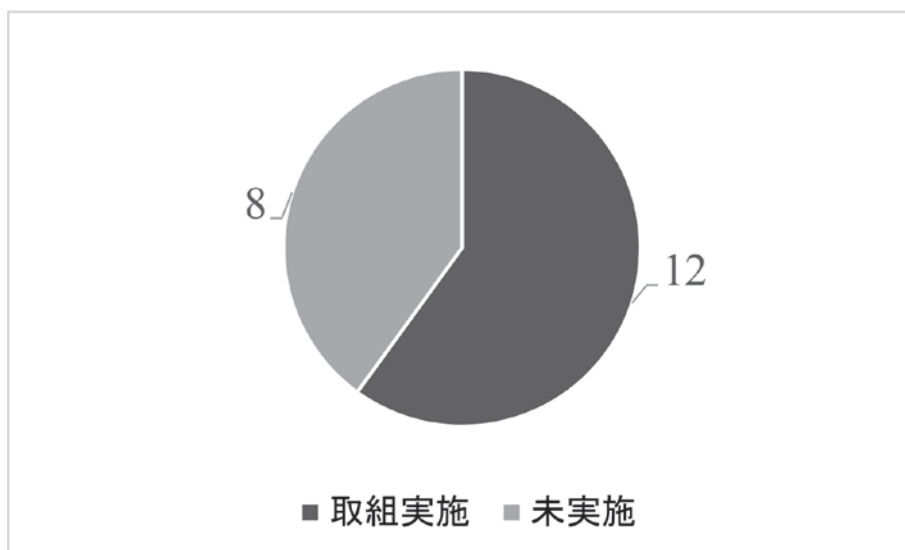
ヒアリングを行った回答者は、文献調査などからパラスポーツの技術開発の大手企業  
在職者及び学会・所属団体のキーマンとして認識できた人々に絞っている。

## 2. 調査結果

### (1) パラスポーツに対する取組の現状

表2と表3に示した20団体より回答を回収した。

まず、調査票で設定した質問2の「【回答企業・組織の取組について】 パラスポーツ，パラリンピックに関して取組を行っている場合は①，いない場合は②にチェックをしてください。」について結果をまとめた。回答結果はパラスポーツ，パラリンピックに関して取組を実施している企業・組織は12団体（重複があるため同一企業の回答はまとめている），未実施の企業・組織は8団体であった。結果は図1の通りである。



N = 20

図1 調査対象企業・組織におけるパラスポーツへの取組状況

未実施の企業・組織のうち，以前取組を行っていた企業は2社あった。図1の結果から60%の企業・組織はパラスポーツに取り組んでいる状況にあるが，この結果は積極的に取り組んでいる組織，つまりヒアリングを行った組織も母数にカウントしているため，高めの傾向にあると考えられる。

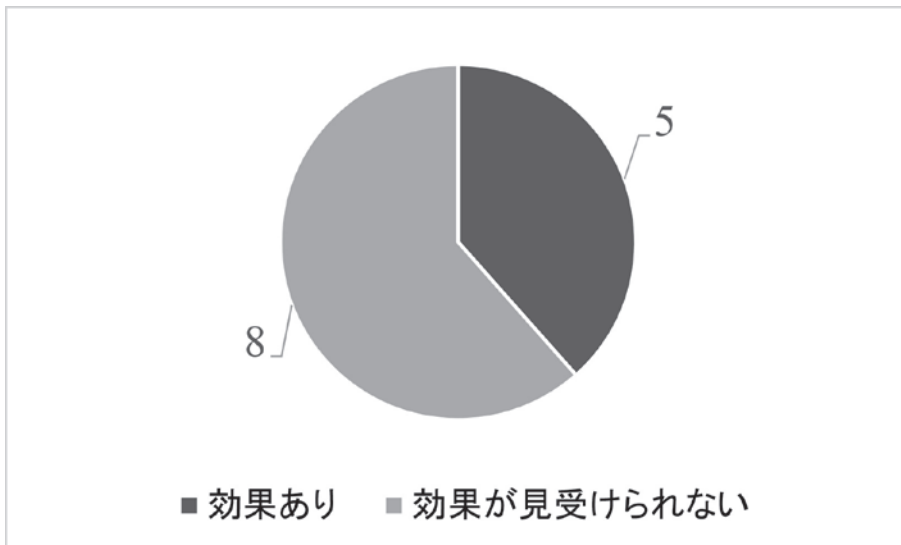
また，パラスポーツへの取組が未実施の企業は多くの場合，企業規模が小さく営業地域が限定されている（注2）。関連して，質問4「【2にて②と回答された場合】取組を行っていない理由をお教えてください。」についての回答は「市場規模が小さくなっている（ユーザが高齢化している）」「ビジネスとして成立する状況にない」などであり，パ

ラスポーツの技術開発に取り組むことができる企業は、全国展開ができるなど体力がある企業に限定されると考えられる。

(2) パラスポーツに対する取組からの一般製品への技術活用・転用

質問3「取組を実施している中で、技術開発全般に貢献していることや他の製品・サービスへの活用は行われているか。ある場合には①，ない場合には②にチェックをしてください。①の場合，具体的な内容をお教えてください。」についての結果をまとめる。

図1で取組を行っている企業・組織（12団体）のうち，スポーツ向け用具開発から一般製品への技術の波及効果があるとした企業・組織の回答を図2に示す。回答は13名から得ているためサンプル数は13としている。



N = 13

図2 スポーツ開発から一般製品への技術的な効果

図2より，スポーツ分野における開発の一般製品への技術活用は38%程度しかないことがわかった。

内容を精査するために，取組を実施しているとした12団体のうち，特徴のある回答を得ることができた7団体の回答を表4から表10に示す。

表4は，車椅子メーカーAのアンケートコメントを整理したものである。主としてスポーツ車椅子に対する取組の技術，広告へのメリットが述べられている。

表4 アンケートコメント（車椅子メーカーA）

回答カテゴリ	コメント
「取組による技術開発全般への貢献や他の製品・サービスへの活用」に対するコメント	<ul style="list-style-type: none"> <li>▶ パラ選手用のオーダーメイドモデルを選手と相談、実験、調整しながら作成している。その試行錯誤の中で、通常では使わない材料や加工方法を試したり、構造解析だけでは現わせない剛性とシナリのバランスを理解したり、操作感といった感性に関わる数値化しにくい性能の理解が進む。それらは、市販型の各種スポーツモデルにフィードバックされる、社員の理解が進むことにより高齢者用車椅子にも間接的には影響を与えていると考える。</li> <li>▶ パラリンピックに使用してもらうことが、展示会等で弊社に興味を持ってもらう一助になっている。</li> </ul>
その他のコメント	<ul style="list-style-type: none"> <li>▶ 社員や、その家族、また社員の採用等に良い影響がある。</li> <li>▶ 海外での販売において新規参入するときに、スポーツ用は最初の一步となりえる。</li> </ul>

表5は、車椅子メーカーBのアンケートコメントを整理したものである。主としてスポーツ車椅子に対する取組の技術、ブランド向上へのメリットが述べられている。

表5 アンケートコメント（車椅子メーカーB）

カテゴリ	コメント
「取組による技術開発全般への貢献や他の製品・サービスへの活用」に対するコメント	<ul style="list-style-type: none"> <li>▶ 軽量、高強度の素材（アルミ、チタン、カーボン）を導入し、競技車で使用した後、日常用車椅子にも採用している。また、性能を求められるパーツ（車輪、キャスターなど）は、品質の良い海外製品を輸入、採用している。反対に自社生産が可能なパーツは内製に切り替え、他の競技車や日常車との互換性を持たせることでコスト低減を図っている。</li> <li>▶ 競技用は生産量が少なく、一点もののオーダーが多いので、量産化によるコストダウンが図りにくい反面、外部仕入れ先との繋がりから、新知識を得ることができたり、自社が持たない技術を得る機会にもなっている。シルバーアルマイト一辺倒だった過去の車椅子が現在のようにカラフルでオーダー対応可能となったのも車椅子競技を行う選手が海外製品を見て、国内のメーカーに要望を伝えた事が始まりである。現在、アルミ製車椅子の場合の表面処理は、アルマイト、カチオン塗装、アクリル塗装、粉体塗装、メッキなど多様な選択肢が用意されている。</li> </ul>
その他のコメント	<ul style="list-style-type: none"> <li>▶ 競技用車椅子には、それぞれに商品名が設定されていて、商品名を表記するためのロゴデザインも費用を掛けて作られている。商品名をつけてブランド化することで、車椅子を所有する喜びという新たな価値が生まれている。</li> </ul>

表6は、総合メーカーAのアンケートコメントを整理したものである。主としてチェアスキーに対する取組の技術向上へのメリットが述べられている。総合メーカーAは義肢装

具関係の事業も手掛けるため、チェアスキーと義肢装具関係の技術活用・転用を読み取ることができる。

表6 アンケートコメント（総合メーカーA）

カテゴリ	コメント
「取組による技術開発全般への貢献や他の製品・サービスへの活用」に対するコメント	<ul style="list-style-type: none"> <li>▶ 冬季パラリンピックで使った（チェアスキー用）製品のシートにFRP（強化繊維プラスチック）のハンドレイアップ成型技術<sup>*</sup>を採用し生産を行った。また本技術はそのほかのスポーツの車椅子シートにも転用し供給を行っている。本技術を他の製品・サービスへの活用として、規格化した長下肢装具のカフ部分の成型に技術転用を行っている。一般プラスチック製品の生産型は初期費用が高いが、FRPのハンドレイアップ成形の成型型は樹脂型が一般的で、金型への投資が必要なく初期費用は余りかからないメリットを活かして生産を行っている。</li> </ul>

<sup>\*</sup> ハンドレイアップ成型技術とは、「成型型に強化基材をあらかじめ賦形（ふけい）させ、人手によって樹脂をハケやローラーで含浸させ、脱泡しながら所定の厚さまで積層する成形法」である。日東紡ホームページ「グラスファイバーとは」< <https://www.nittobo.co.jp/business/glassfiber/about/method/handrayup.htm> >（最終閲覧日2019年5月30日）

表7は、リハビリ機器提供病院Aの関係者からのヒアリングコメントを整理したものである。リハビリ機器提供病院Aでは、義肢装具からチェアスキーまでも手掛けるため、高い技術力を持つが、パラスポーツで開発した技術は他の機器へ活用はしていないとの回答であった。ただし、ユーザは開発側が想定しない使い方をするのがわかったため、開発する上での貴重な経験を得たとのコメントがあった。

表7 ヒアリングコメント（リハビリ機器提供病院A）

カテゴリ	コメント
「取組による技術開発全般への貢献や他の製品・サービスへの活用」に対するコメント	<ul style="list-style-type: none"> <li>▶ 選手と一緒に時間を過ごすことで障がい者の用具の使い方などがわかった。</li> <li>▶ スポーツ用具の開発がほかの機器開発にメリットがあったとは言えない。</li> </ul>

表8は、リハビリ機器提供病院Bの関係者からのヒアリングコメントを整理したものである。主として義肢装具の視点から回答されたコメントである。パラスポーツでは高負荷、高精度の技術が求められ、それらの技術は一般的な製品・装具に活用されることを指摘している。

表8 ヒアリングコメント（リハビリ機器提供病院B）

回答カテゴリ	コメント
「取組による技術開発全般への貢献や他の製品・サービスへの活用」に対するコメント	<ul style="list-style-type: none"> <li>▶ 「素材」と「アライメント」に関する知識をスポーツ分野から得た。</li> <li>▶ 従来、義足のソケット部分はプラスチックなどを使用していたが、厚生労働省は10年程前にカーボン素材の一般向け使用を許可した*。スポーツ用義足を20年程取り扱っており、カーボンの知識があったため、カーボン製ソケットを活用している。肉体労働をする一般の使用者などもカーボン製ソケットを使用している。</li> <li>▶ ソケットとその他の構成要素との相対的な位置関係をアライメントと呼ぶ。その設定は、歩行や立位の安定に大きな影響を与える。この調整において、スポーツ選手は一般の使用者と比較して、動作に合せての義足追従性などを求めるため、精緻な設定能力が身についた。この能力を一般にも活用している。</li> </ul>
その他のコメント	<ul style="list-style-type: none"> <li>▶ 障がい者が自立するためにスポーツは重要である。感覚として、障がい者全体の5%程度がスポーツに取り組んでいる。身体的に遅くなるだけでなく、成功した場合は経済的にも自立できる。パラリンピックにおける成功はオリンピックよりも影響が大きいと考えられる。</li> <li>▶ 義足を提供した選手がアメリカ・ユタ州に遠征に行った際、ソケットと膝継手の接合部が折れることがあった。それは使用環境が想定とは違ったためだと推測される。素材と使用環境との関係も経験として得ることができた。</li> <li>▶ 義足は一人一人に合せて提供するため、これまでの経験を規格化、マニュアル化していくことは難しい。</li> </ul>

\* 義肢や車椅子などは「補装具費支給制度」があり、国からの購入補助がある。また、費用算定するため素材などが厳密に設定されている。

表9は、車椅子メーカーCのヒアリングコメントを整理したものである。特定の素材の取り扱いには他社も一目置く企業であり、製品を使用した選手は多くのメダルを獲得している。しかし、パラスポーツでの開発は一般の製品に大きな影響を与えるまでには至っていないことを指摘している。

表9 ヒアリングコメント（車椅子メーカーC）

回答カテゴリ	コメント
「取組による技術開発全般への貢献や他の製品・サービスへの活用」に対するコメント	<ul style="list-style-type: none"> <li>▶ 製品を提供している選手がパラリンピックに参加し、メダルを獲ると製品に関する海外からの問い合わせが増加する。また、素材の売り込みなどもある。スポーツ分野で開発した技術は、素材メーカーと開発した。航空機にも使用されていると聞く。</li> <li>▶ ただ、スポーツ分野での開発技術から多くの知見を得ていないのではないかと感じる。</li> </ul>

その他のコメント	<ul style="list-style-type: none"> <li>▶ 現在、技術開発は選手自身と共に進めている状況である。技術開発や選手を育成する全体計画が充足できていないまま行っている。チェアスキーでは選手の高年齢化が進んでいる。</li> <li>▶ 国からの資金援助は選手に対するものがほとんどであり、技術開発までは行き届いていないと感じる（注3）。</li> </ul>
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表10は、総合メーカーBのヒアリングコメントを整理したものである。様々な機器を提供する企業ではあるが、スポーツ分野では選手自身と直接コミュニケーションをとって機器開発をしておらず、義肢装具士経由での機器提供というビジネスモデルである。また、メダル獲得ができていないため、コマーシャルベースに寄与していないとのコメントもあった。

表10 ヒアリングコメント（総合メーカーB）

回答カテゴリ	コメント
「取組による技術開発全般への貢献や他の製品・サービスへの活用」に対するコメント	<ul style="list-style-type: none"> <li>▶ スポーツ分野に提供している部品は一般仕様。スポーツ向けに開発しているものは上記以外は少なく、主要製品ではない状況。また、スポーツ選手とは義肢装具士を通じて対応するため、直接フィードバックをもらうことも少ない。</li> <li>▶ メダルを獲得するなどの実績も少ないため、海外からの問い合わせなどはない。</li> </ul>
その他のコメント	▶ パラスポーツがもっと脚光浴びることができればビジネスチャンスが広がると考える。現状では、スポーツではコマーシャルベースにはなっていない。

以上のコメントから、パラスポーツに対する取組からの一般製品への技術活用・転用の例を表11に整理する。表11中の技術カテゴリの「内外作判定」とは部品を内製とするか購入部品とするかの判断を指す。

表11から、パラスポーツでの取組は、製品設計プロセス、調達プロセス、生産プロセス、保守プロセスといった製品を作り上げる（実現する）プロセス<sup>11</sup>において幅広く影響を与えていることが分かった。これらの例は製品品質の向上に寄与していると考えられる。

表11 パラスポーツに対する取組からの一般製品への技術活用・転用の例

技術カテゴリ (製品実現プロセス)	事例
製品使用環境理解 (製品設計)	<ul style="list-style-type: none"> <li>▶ 選手と一緒に時間を過ごすことで障がい者の用具の使い方などがわかった(リハビリ機器提供病院A)。</li> <li>▶ 義足においてソケットと膝継手の接合部が折れることがあった。それは使用環境が想定とは違ったためだと推測される。素材と使用環境との関係も経験として得た(リハビリ機器提供病院B)。</li> </ul>
素材選択・加工・理解 (製品設計)	<ul style="list-style-type: none"> <li>▶ 通常では使わない材料や加工方法を試したり、構造解析だけでは現わせない剛性とシナリのバランスを理解したり、操作感といった感性に関わる数値化しにくい性能の理解が進む(車椅子メーカーA)。</li> <li>▶ 軽量、高強度の素材(アルミ、チタン、カーボン)を導入し、競技車で使用した後、日常用車椅子にも採用している(車椅子メーカーB)。</li> <li>▶ スポーツ用義足を20年程取り扱っており、カーボンの知識があったためカーボン製ソケットを活用している。肉体労働をする一般の利用者などもカーボン製ソケットを使用している(リハビリ機器提供病院B)。</li> </ul>
調達・内外作判定 (調達)	<ul style="list-style-type: none"> <li>▶ 性能を求められるパーツ(車輪、キャスターなど)は、品質の良い海外製品を輸入、採用している。反対に自社生産が可能なパーツは内製に切り替え、他の競技車や日常車との互換性を持たせることでコスト低減を図っている(車椅子メーカーB)。</li> <li>▶ 外部仕入れ先の繋がりにから、新知識を得ることができたり、自社が持たない技術を得る機会にもなっている(車椅子メーカーB)。</li> <li>▶ スポーツ分野で開発した技術は、素材メーカーと開発した(車椅子メーカーC)。</li> </ul>
生産 (生産)	<ul style="list-style-type: none"> <li>▶ 製品のシートにFRP(強化繊維プラスチック)のハンドレイアップ成型技術を採用し生産を行った。また本技術はそのほかのスポーツの車椅子シートにも転用し供給を行っている。本技術を他の製品・サービスへの活用として、規格化した長下肢装具のカフ部分の成型に技術転用を行っている。一般プラスチック製品の生産型は初期費用が高いが、FRPのハンドレイアップ成形の成形型は樹脂型が一般的で、金型への投資が必要なく初期費用は余りかからないメリットを活かして生産を行っている。(総合メーカーA)。</li> </ul>
製品調整 (保守)	<ul style="list-style-type: none"> <li>▶ ソケットとその他の構成要素との相対的な位置関係をアライメントと呼ぶ。その設定は、歩行や立位の安定に大きな影響を与える。この調整において、スポーツ選手は一般の利用者と比較して、動作に合せての義足追従性などを求めるため、精緻な設定能力が身についた。この能力を一般にも活用している(リハビリ機器提供病院B)。</li> </ul>



また、技術的な面以外では、下記のコメントがあった。

- 1) 社員や、その家族、また社員の採用等に良い影響がある（車椅子メーカーA）。
- 2) 海外での販売において新規参入するときに、スポーツ用は最初の一步となりえる（車椅子メーカーA）。
- 3) 商品名をつけてブランド化することで、車椅子を所有する喜びという新たな価値が生まれている（車椅子メーカーB）。

以上より、パラスポーツの取組は、採用やマーケティングに有用であるとも想定できる。

### 3. 結論

パラスポーツ関連事業では義足をはじめとして新規参入企業・組織が増え、先端技術を用いた研究開発が行われている。そのような先端的な技術は一般の製品に活用・転用され、一般の消費者もそのメリットを享受できるとの認識の下で、パラスポーツにおける主な用具（車椅子・義肢・チェアスキー）の開発の調査を行った。

調査からわかったことでまず注目すべきは、20団体のうち60%の企業・組織がパラスポーツに取り組んでいる状況にあることである。60%の企業のうち、スポーツ向け用具開発から一般製品への技術の効果があると回答した団体は38%程度であったことも興味深い。また、回答の詳細を見ていくと、製品設計プロセス、調達プロセス、生産プロセス、保守プロセスといった製品を作り上げる（実現する）プロセスにおいて幅広く影響を与えていることが分かった。すなわち、パラスポーツの取組は、一般製品の製品品質の向上に寄与している場合も多いことが判明した。また、技術的な面以外でわかったこととして、パラスポーツの取組は、採用やマーケティングに有用であることであった。

一方、課題として浮き彫りになったことは「東京パラリンピックのために義足などの分野で公的支援を活用した新規参入は見受けられるが、既存のメーカーには公的支援が充実していないこと」や「現在の多くの技術開発の取組が選手個人に照準を合わせたものであり、競技団体などは長期視点での人材育成や技術開発の計画を充足できていないこと」であった。

東京2020パラリンピック競技大会をトリガーとした研究開発が一過性に終わることなく、開催後もパラスポーツの技術開発が持続し、ひいてはそれが共生社会構築を支える重要なファクターとなるためには、課題を喫緊に解決すべきである。

また、本調査はヨーロッパの大手企業一社にもヒアリングを行っているが、具体的で技術的な取組をヒアリングできていない。ヨーロッパの大手企業は、モジュラー型と呼ばれる高さなどをカスタマイズできる車椅子や市場シェアの高い義足部品を揃え、高い

技術を併せ持つ。今後の追跡調査には、それらのヒアリング調査が必要である。

#### 注

- (1) 日本車椅子シーティング協会は、車椅子・電動車椅子をはじめとする座位保持装置などを提供する企業が設立した協会である。本調査にあたり事務局の林幹太氏をはじめ多くの加盟企業に協力を得た。
- (2) 車椅子や義肢を手掛ける企業の多くは中小企業であり、全国展開している企業は少ない。
- (3) メーカーに対する国の支援として、厚生労働省による「障害者自立支援機器等開発促進事業」が行われており、スポーツ用義足はそのサポートを受けた実績はある。その取組の報告書は公開されている < <https://www.mhlw.go.jp/bunya/shougaihoken/cyousajigyou/jiritsushienkiki/H22/S13/13report.pdf> >。

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# Current Situation and Challenges of Technological Development for Para-Sports Equipment: from the Viewpoint of Utilizing Technology for Sports Development in General Products

Akira NAGAMATSU

Supportive equipment and devices for athletes are being actively developed towards the 2020 Tokyo Paralympic Games. There have been successive new entries into the market for prosthetic legs for sports, including the startup Xiborg, Toray, Mitsubishi Chemical, and the National Institute of Advanced Industrial Science and Technology. In addition, the activities and contributions of companies manufacturing sports wheelchairs have received much coverage in newspapers and on television.

Increased activity in technological development has led to the creation of for example cutting-edge material and structures, and it can be expected that such technology will be used for general products and also offer benefits to ordinary consumers. We have seen technologies from various fields utilized for general purposes, a typical example being the Global Positioning System (GPS) which was originally developed in the U.S. as military technology but is now used commercially for car navigation systems, time setting, and other purposes. If many of the technologies developed for para-sports can also be utilized commercially, it will become a market for new business opportunities attracting the attention of many companies and could promote the growth of the market, which will offer further benefits to the general consumer.

With the above in mind, and with the aim of clarifying the process through which technology developed for para-sports may be utilized for general products, a study was conducted to identify the current situation and challenges facing the development of para-sports equipment (wheelchairs, prosthetic limbs, outrigger skis). With the cooperation of the Japan Association of Wheelchair and Seating, responses

were gathered from 20 entities through questionnaires and interviews.

One notable fact revealed by the study is that 12 of the 20 companies and organizations work in the field of para-sports. Interestingly, approximately 38% of the 12 companies responded that the utilization of technology developed for sports devices in general products is effective. A detailed look at the responses showed that there was a broad impact on processes for creating (realizing) products, including at the levels of product design, procurement, production, and maintenance. It is thus apparent that in many cases, working in para-sports contributes to improving the quality of general products. Furthermore, regarding non-technological aspects, the study showed that working in para-sports is useful in recruitment and marketing.

The following challenges stood out in the study: (1) although government support was used for the Tokyo Paralympics by some new entries in the market, for example for prosthetic legs, support for existing manufacturers is insufficient, and (2) technological development is geared towards individual athletes and thus lacking a long-term perspective for developing human resources and technology. These issues need to be addressed urgently.

The study also included interviews with leading European companies, but specific information concerning their technological endeavors has yet to be obtained. These companies are developing competitive and advanced technology, such as modular-type wheelchairs that can be customized for example in height, and are important for further study.

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